

CAR CRAFT

V.8 #8

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DECEMBER 1960 25¢



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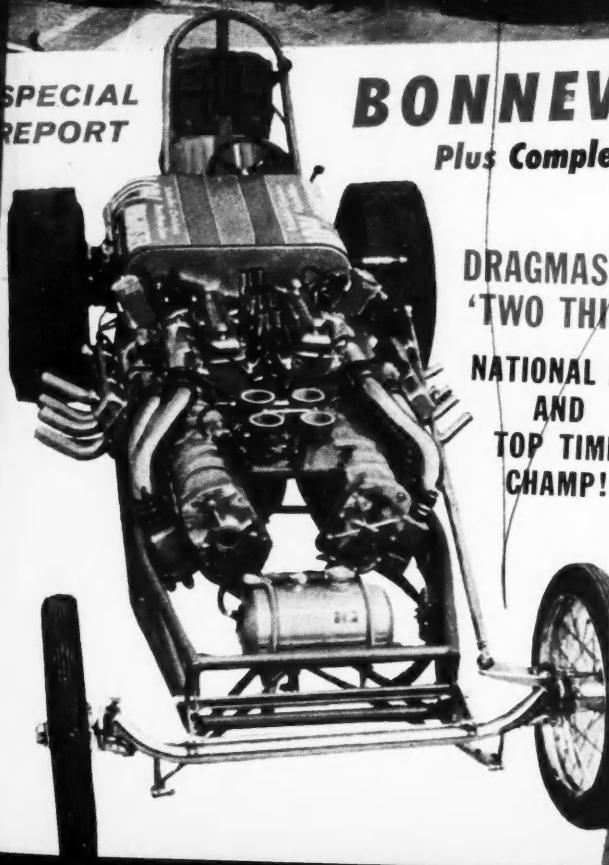
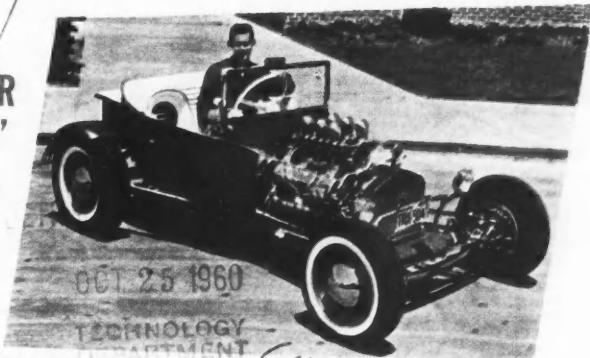
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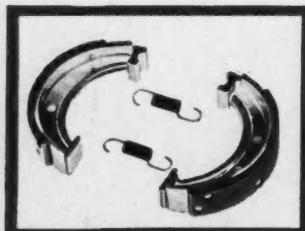


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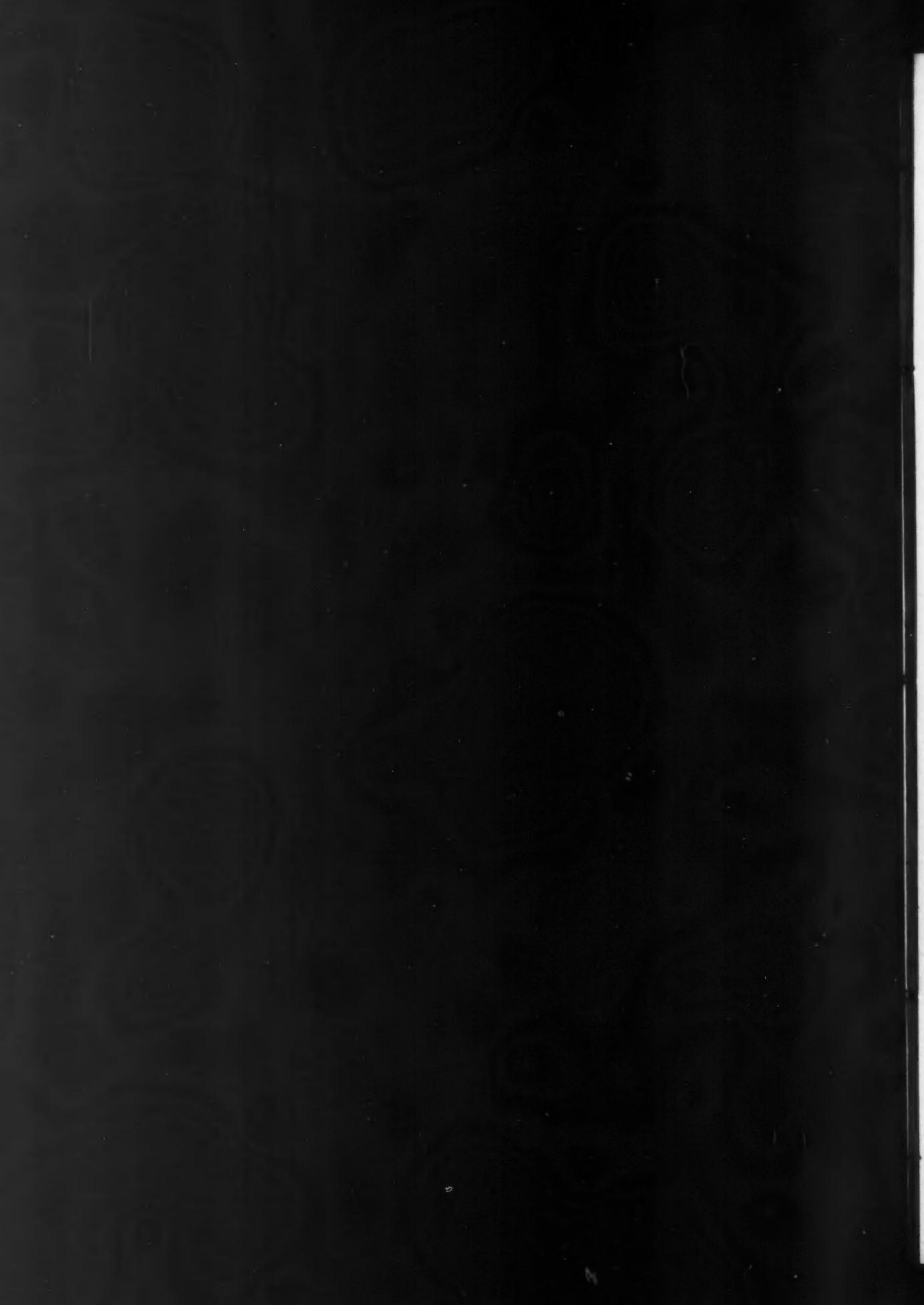


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Engine swapping, the secret of adding hidden power to your car. If you're not satisfied with the performance potential of your present engine, here's how to replace it with a real racehorse worker. Selecting a ready-made motor for your car is easy . . . when you know how.

ELECTRICAL CIRCUITS:

Since every post-1956 American built automobile boasts a 12-volt electrical system, replacing vintage engines with modern ones requires various elementary adjustments. Here is the chapter that tells you what these adjustments are and how they are accomplished.

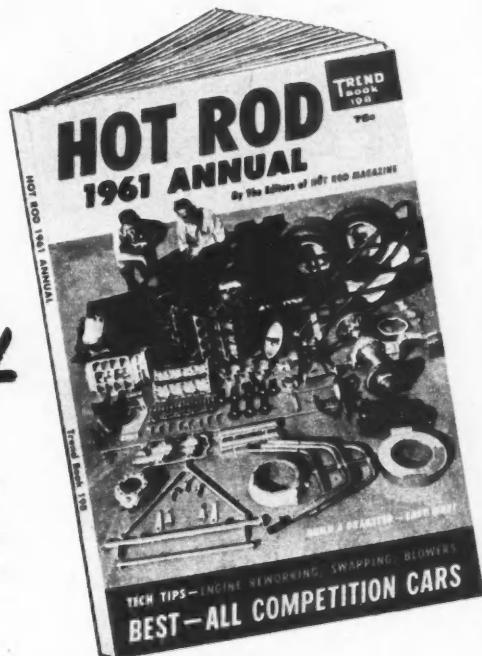
AUTOMATIC TRANSMISSIONS:

Until recently there wasn't an automatic transmission equal to the task of holding the torque of a hot engine and standing up under the fast speeds of which today's modern rods are capable. If you're seeking smooth, positive, no-clash shifting with a dependable life, read this first.

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CAR CRAFT

CRAFT



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— Anscocromes by Barris, Behme, D'Olivo, Eddy, Lang

DECEMBER, 1960

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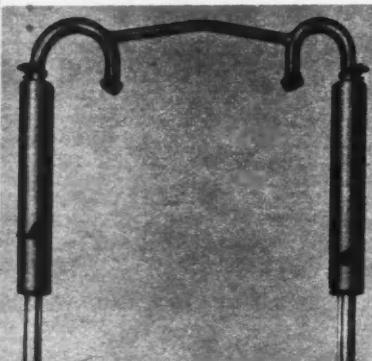
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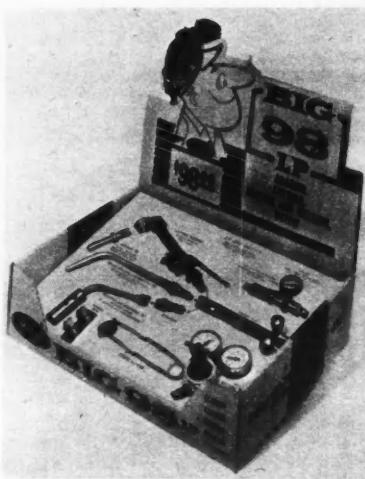


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1946-51 Lincoln

1948-56 Stude Commander

1947-57 Stude Champion

1949-60 Chev

1949-50 Olds



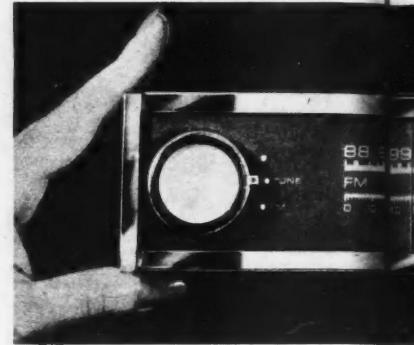
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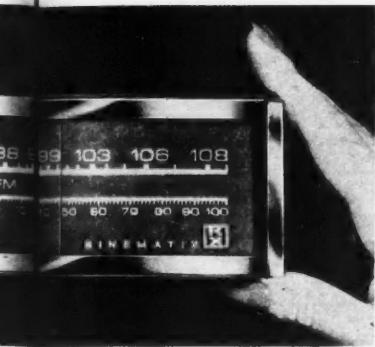


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LETTERS

IVO SNAPPED DURING TOUR

Dear Sir:

After reading the September issue of CAR CRAFT I thought some of



your readers might be interested in these photos of Tommy Ivo's "Red Bomb". These were taken at Drag-



way 30, near Schererville, Indiana. This stop was part of Tom's 'eastern tour'.

— Mike Colley
Tinley Park, Ill.

REGARDING THE '50 CORVETTE

Dear Sir:

On page 20, lower left hand corner of your September issue of CAR CRAFT, there is a picture of a dragster, with a '50 Corvette mill running six pots and a 5-cycle cam.

I was under the impression that the Corvette didn't come out until 1953. And that was a six cylinder! The mill in the picture, looks very much like an eight-cylinder. I also thought the Chevy people didn't offer F.I. until 1958. Please set me straight on these facts. May I also say your magazine is very interesting.

— Richard F. Brown
Brooklyn 30, N.Y.

Yes, you may. — Ed.

Dear Sir:

I'm not one to complain but since when has there been a '50 Corvette? I'm referring to the September issue of CC on page 20 the picture of Ken Carlson's dragster with '50 Corvette f.i. block.

I buy your magazine every month and think it's one of the greatest on

the newsstands. Let's try not to have any more mistakes.

— Johnny Beyea
Tomkins Cove, N.Y.

Right here and now we'll come out with the earth-shattering statement that there never was a '50 Corvette. From all indications on our fact sheet, that caption should have been '60 Corvette. This is what we in the trade, cha cha cha, call a typographical error. — Ed.

TOOK IS SHOOK... AND SO ARE WE

Dear Sir:

In regards to your September issue on the 'Church Going Roadster'. The article said that the roadster was built by the club. Inclosed is an advertisement from HOT ROD Magazine. WHAT GIVES besides a lot of malarkey?

SELL — Rear engined Modified T roadster. Five cycle Chrysler engine. Hilborn injection, mag wheels, Schiefer dual disc velvet touch clutch, much chrome, custom paint, trophy winner. Hollis Allen, 320 Date St., San Diego 1, Calif.

— Ben Took
Camas, Wash.

You know, it's seldom that we get a letter that 'bugs' us. But this one does and that's why we're printing it verbatim, and un-edited. We don't want to generalize, but this is typical of some letters we receive from individuals who have jumped to conclusions with nary a thought of checking out the facts. We direct you, Mr. Took, to page 31 of the September 1960 issue and the last paragraph of the article on that page. Notice that it says, and we quote, "Until recently, Dr. John Moberly was in direction of the groups and now the assignment has been given to Hollis Allen." We now direct you, Mr. Took, to the advertisement which you kindly included with your letter. In the ad, Hollis Allen is indicated as the person to correspond with pertaining to purchase of the Calif Club's roadster. Now doesn't it stand to reason that there is NO malarkey 'giving' since Mr. Allen requests you to contact him to buy the car which was built by the car club which he now directs? It certainly does to us.

Boy, sometimes it just doesn't pay to get up. Particularly when we have to waste our time on something like this. — Ed.

CHILIAN CURRENCY

Dear Sir:

I noticed in your September issue, under the section "Letters" from the readers a letter from Hugo Petitbon from Santiago, Chile. He stated the prices which sound fantastic; 1960 Chev \$15,000 and 1951 Chevs for \$4,000. Is this in American dollars or Chilian currency? I am really interested to know.

— Raymond McClaren
Wadesville, Ind.

Apparently it's U.S. currency. That's a lot of bread, too. — Ed.

MODEL CAR SHOW

Dear Sir:

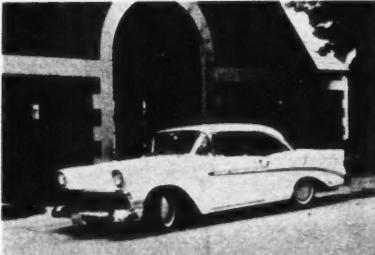
I am a subscriber to your fine magazine and when I picked up the new October issue I noticed a letter from a boy in New Jersey believing that a Model Club there had staged the first and only model show. I would like to correct that by advising you that on April 13, 1960 the Big M Custom Shop (the name was recently changed to the Big M Speed Center), a group of local boys staged a model show in co-ordination with the Timers and the Slow-Pokes 3rd Annual Car Show here in Stillwater. There were ten models shown, which were selected by our own judges, they proved as popular as any of the other cars not only to the public but to the participants also. Anyone desiring advice should write to:

— Big M Speed Center
c/o Preston Moore
Co-President
803 Blakeley St.
Stillwater, Okla.

NAVY CHEV

Dear Sir:

I am enclosing some pictures I took recently of my 1956 Chev, which



has a floor shift, a '57 Chev full race engine, and a few other goodies.

Some of the work on my car were ideas that came from your magazine



which I think is tops! Most of the work was done by myself as the money situation in the service is not too good.

— David J. Allen
U.S. Naval Air Station
Grosse Ile, Michigan

DECEMBER, 1960

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SPEAKING
 of **the editor**

This Beautiful 1960 FOR
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 TO BE PRESENTED TO GRAND SWEEP
 SEPT. 5th, AMT C

WHEN WE ASKED Ray Farhner a few months ago for the reason behind the construction of his beautifully stylized rod-pickup that appeared on the front cover of our October issue, he promptly stated that he had built the sculptured deuce for the purpose of competing for the Oakland Roadster Show's title and award — *The World's Most Beautiful Rod!* Ray was unable to attend the roadster show classic earlier this year but made up for it and then some at the NHRA Second Annual National Champion Custom Car Show staged over Labor Day weekend in Detroit, Michigan. Ask anyone who toured the show floor and I'm sure you would get a unanimous vote that his '32 Ford aptly titled Eclipse, formerly the "Blue Angel", was truly a candy colored charmer. Pictured above is the Independence, Missouri, custom body shop proprietor moments following the announcement that he and his rod-pickup entry had been named the new Grand National Sweepstakes Champion. Surrounded by this year's spoils, the show's six foot Grand Sweepstakes trophy — and the Fire Engine Red '60 Ford Sunliner convertible sponsored by the AMT Corporation, I doubt that even at this writing the new champ has descended from that crazy mixed up, heavenly, cloud nine that has labeled him and his deuce "king of the show cars" for 1960. *Congratulations!*

Many new champions were a part of this year's combined National Hot Rod Association Labor Day Weekend

events. While the epitome of the nation's sharpest show-cars were being considered by show judges for their merits of construction and beauty on the colorful floor of the Artillery National Guard Armory — hundreds of the country's fastest quarter mile dragsters were battling for national honors and prestige on the city's famed Detroit Dragway. The five day event's spasmodic weather that ran from heat to rain, sleet to tornado winds, then back again to hundred degree temperatures was no match for the blast of the Albertson Olds and driver Leonard Harris who staged a one car battle, finally emerging as the National Drag Champion — and the title of "Mr. Eliminator" for 1960. The combination of Harris and the Albertson Olds is relatively new; a car that has only been to the starting post some fourteen times prior to NHRA's "Big Go" but has flashed over the finish line undefeated since initially being fired up. The jet streams of the 707's surely have nothing on this 'A' dragster all the way from Playa Del Rey, California that spelled the end to one car after another with its consistent performance of speeds in the 165 mph range and top elapsed time of the meet with a fleet 9.25. You may zero in on other "Eliminator" results and highlights from the Detroit Nationals on page 32 — all that deadline time allowed for this issue. Next month we will follow with complete photo coverage of divisional and class champions of both the "Big Go" and the "Big Show" events — standby and we'll see you then.

— Dick Day

BY DON FRANCISCO

BONNEVILLE IS A CRAZY place, especially during the National Speed trials. Miles and miles of smooth white surface to drive on, no police to lay the hand on you for sticking your foot in the carburetor, and trophies for the cats who go the fastest! For 28 bucks you can run all week, on the world's finest high-speed course, and have your speed measured by J. Otto Crocker's timing equipment, also the world's finest. Guys who run for official F.I.A. records other times of the year pay 1000 to 2000 dollars per day for the same privilege.

This year 113 car owners and several motorcycle cats took advantage of the go-for-pennies deal offered by Nationals. Some of them set new records—30 in all—others just went fast on qualifying runs, some blew engines, everybody worked hard, and everybody had a ball! How can you work hard and have a ball at the same time? Anyone who asks this question hasn't been to Bonneville; and the only way he can ever understand is to become a part of a Nationals meet.

Every Nationals meet has its star performer, the car that somehow or other captures the attention of the spectators and other competitors. Last year it was Mickey Thompson's Challenger I; this year it was Bill Burke's class D Streamliner.

Bill's car is a wild little machine. Hardly larger than a roller skate, it was built just large enough to accommodate Bill, a Falcon engine of 156 cubic inches, and the bare essentials necessary to stab, steer, and make the wheels go 'round. Bill designed its fiberglass body along the lines of the Sprite the speed-savvy Britishers ran so successfully at Bonneville in 1959. The design seemed to work as well for Bill as it did for its originators.

Bill's car was a sort of partnership affair. He supplied the chassis and Bill Stroppe and his crew of Ford specialists supplied the engine and tuned it. Stroppe had the Hilborn-injected engine on hand from an earlier project. It seemed to be a natural for the little car, and it proved to be.



NATIONAL SPEED TRIALS

BONNEVILLE-1960

The car ran better each time Bill drove it. The last day of the meet it set a new record in its class with an average of 205.949 mph for the two-way run required for a record. His fastest one-way run was over 206 mph. The car's record speed is about seven miles per hour faster than the American record for the class but about 43 miles per hour slower than the International record. However, the Falcon engine is

malfunctioning in some manner, or lack of fuel flow at high engine speeds because of faulty pump action or some deficiency in the fuel system. Another possibility is one or more air leaks in the induction system that allow additional air over that provided by the carburetion system to be inducted by one or more cylinders. These are all common problems but sometimes they are hard to find. The best way to pre-

or whatever his carburetion system requires. But what happens on the salt? On the first full-throttle run the engine goes sour with holes in the heads of one or more of its pistons. What's wrong? Must be bad pistons.

The main thing wrong with tuning lean for Bonneville is that it is practically the only place in the world available to hot rodders where they can open the throttle at the starting line and run at 2 1/4 miles, and much



Left. Bill Burke, driver of the Sports Cars Illustrated Special class D streamliner, lounged rather than sat in his car so that he could keep the overall height of its body as low as possible. Above. Hottest kart at the meet was the Schapell-Orndorff streamliner "Cutlass Kart." Plagued by piston trouble, car's 16.3 c.i. engine pushed it through the traps at 93.45.

twenty-seven cubic inches smaller than it could be and still qualify for the International class; also, it could be fitted with a blower, which could boost its horsepower considerably.

Bonneville can be rough on engines. Lots of guys have engine trouble during the Nationals and the most common failure is burned pistons. This year wasn't any exception in this respect.

Pistons burn because the fuel-air mixture in the cylinders is too lean. Leanness can be caused by many things but these can be divided into two general categories that are mechanical problems and tuning. Mechanical problems would include poor fuel-air mixture distribution between the cylinders because of intake manifold design or faulty carburetion caused by one or more throats of multiple-throat carburetors or individual branches of a fuel injector being incorrectly jetted or

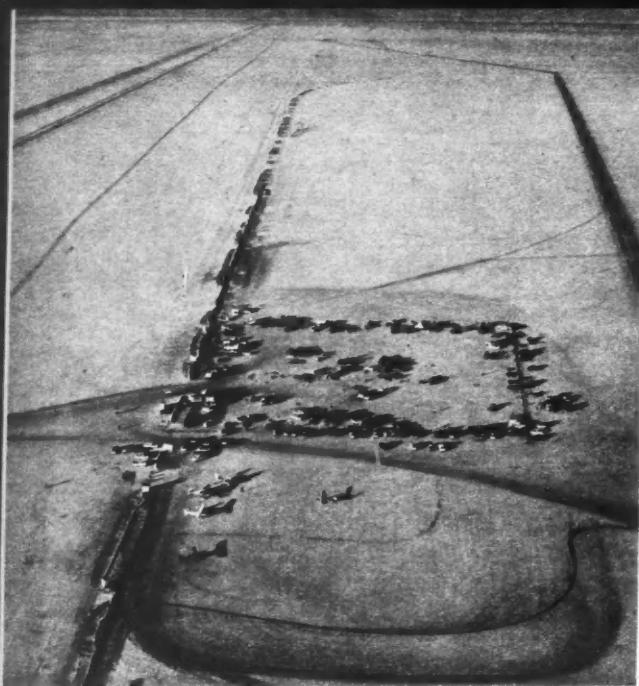
vent or eliminate them is by engineering the fuel system to give it ample capacity for the engine and by assembling the fuel system as carefully and accurately as possible.

Tuning is probably the major cause of piston burning at Bonneville. A fellow tunes his car at home and gets the fuel mixture about right for best power for normal driving or the drags. Probably the elevation of his home area is a thousand feet or so above sea level. Then he starts to get ready for Bonneville. The first thing he does is check a map to find the elevation of the salt flat. Everybody knows that altitude affects an engine's fuel-air mixture. The higher the altitude, the richer the mixture becomes with jets of a specific size. So our tuner finds that Bonneville has an elevation of slightly over 4200 feet. Wow! This is pretty high. I'd better lean this bear down. So he leans the mixture with smaller jets

farther if they want to, without lifting their right foot. At the drags the farthest they go with the throttle open is a quarter of a mile. There's quite a difference between a quarter of a mile and 2 1/4 miles when an engine is running under full-throttle. Over the longer distance surfaces that form the engine's combustion chambers have a chance to get hot, really hot. When this heat exceeds a certain point, holes burn in the heads of the pistons. The pistons take the beating because they are made of aluminum and, therefore, are the most susceptible of all the chamber surfaces to damage from heat.

The solution to the problem is to leave the mixture rich, much richer than common sense would dictate, for the first run so that an idea of what is going on in the combustion chambers can be formed. Then, if the mixture proves to be excessively

CONTINUED



BONNEVILLE '60

Left This is a view of the salt flat that most hot rodders don't get to see. Rectangular grouping of cars outline the pit area. At far left is the International course for the big boys that plan to run 400 mph and next to it is the hot rod course. Road at right is spectator access road to timing area.

Right. Latest entry in the scramble to be the first to break the late John Cobb's 394 mph World's Land Speed Record is Art Arfons, of Green Monster dragster fame, and his brand new Allison-powered streamliner. Art fired his car the last day of the Nationals. His fastest practice run was 213 mph.

rich, lean it in small steps until the mixture for best power is obtained.

The value of rich fuel-air mixtures in an engine that must run under full throttle conditions for extended periods of time is primarily to provide maximum power and secondarily to cool combustion chamber surfaces. When a fellow realizes and understands this secondary effect he shouldn't have any more trouble with burned pistons because of tuning problems. Many of the guys who run at Bonneville understand this. This was made evident by the clouds of black smoke many of the cars displayed as they left the starting line. Mixtures that are way too rich can cause a loss of horsepower but they won't cause any damage to the engine. So next time start rich and then lean down to best power, don't try to start lean and then gradually richen to best power.

Whoever makes the weather was unhappy with the Nationals competitors on Monday, the second day of the meet. This was a day to remember. The wind blew, lightning flashed, thunder rolled, and the rain came down in drops that seemed to be as large as tennis balls. Everything on the salt that wasn't securely anchored either blew over or was blown away. Needless to say, no runs were made this day. The rest of the days were gorgeous.

Spectators and competitors who dallied on the salt after the meet was officially closed Saturday morning were treated to a preview of Art Arfons' new streamliner with which he plans to try for the World's Land Speed Record, probably early in September. Art fired his Allison-powered car and made a few test runs through the timing traps to check its handling and other characteristics. This brings to four the number of potential 400-plus mph cars now ready to run on the salt. Drivers of all these cars are aiming at the late John Cobb's 394 mph record that he established in September of 1947. A fifth man in this group was Athol Graham, who suffered fatal injuries in a crash during his attempt on the record early in August of this year.

It's a good thing hot rodders don't spoil easily. If they did, all the attention they are receiving from spark plug and tire manufacturers these days would soften them in a hurry. Not long ago the only parts and equipment a rodder had on the salt were those he took with him. This year, Champion spark plugs, Autolite spark plugs, Firestone tires, and Goodyear tires had crews and equipment on the salt to assist the competitors in any way they could. An oil company, which distributed oil free of charge at the meet last year,

was conspicuous in its absence this year. Several competitors had taken the liberty of depending on this company for oil for their cars; they had to make other arrangements.

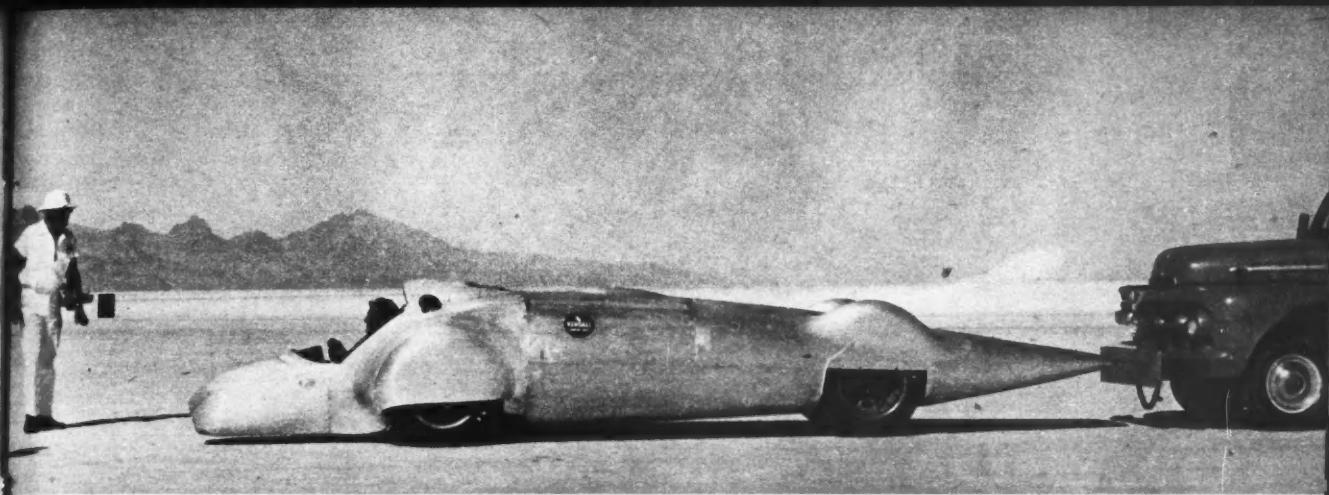
Most impressive of the manufacturer's representation was Bill Stroppe's mobile machine shop that was present through the courtesy of the Electric Autolite Co., which has recently started to manufacture spark plugs for racing engines. Facilities of the shop were available to anyone who needed them.

In many ways this was a very good meet, but perhaps more important of all was that no one got hurt. Joe Lacosta, in the Pisano Bros. Stude coupe, flipped just after passing through the quarter-mile trap but he climbed from the wreckage and walked away under his own power. This is a tribute to the safety requirements that each car owner must observe before his car can run on the salt. The next time you think a safety requirement at any automotive event is too strict, think of Joe and others like him who have been saved by sturdy roll bars and other safety devices which, after all, are simple to install and relatively inexpensive when compared to the total cost of any type of competition vehicle.

All in all, Bonneville Nationals, 1960, was a terrific meet.

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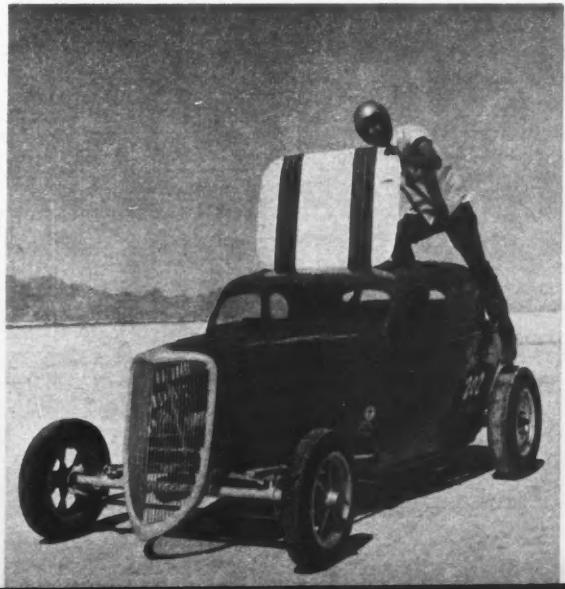
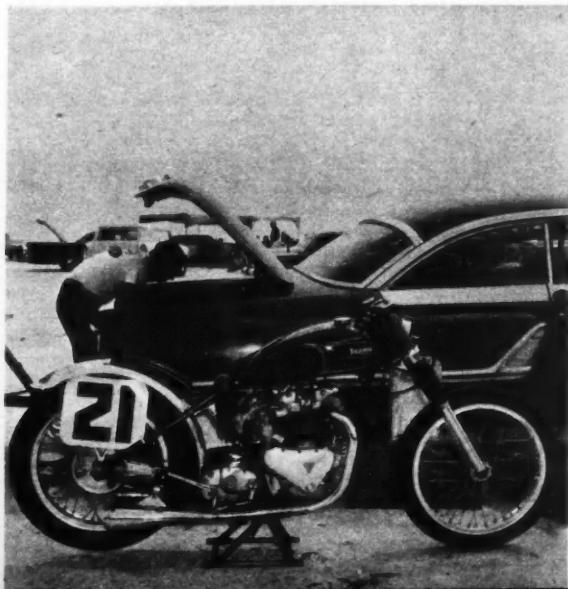
CAR CRAFT



Joe Granatelli and Paxton Products 300 F Chrysler, fitted with dual Paxton superchargers, made a one-way run of 167.910 mph and set a new record of 165.918 mph. The engine had its stock displacement, carburetion, and ram injection intake manifolds. Special equipment included ForgeTrue pistons, a Roto-Faze 2-coil ignition distributor, and hardfaced camshaft.

Rich Richards brought his 40-inch Triumph and his family all the way from Eugene, Oregon, for a week's ball on the salt. Rich used to do all his own riding but now son Gary does the handling for the family. During the week Gary burned a couple of pistons but on last day set a record of 147 mph.

Rich Richman enters his class A Altered Coupe the hard way. Rich, Clay Crabtree, Dale Kanzler, Pete Burkholder, and Cliff McClure brought blown Chrysler, hidden by immaculate '34 Ford sheet metal, to take home a record but really "blew" engine before they could get under way; and no spare parts!



BONNEVILLE '60

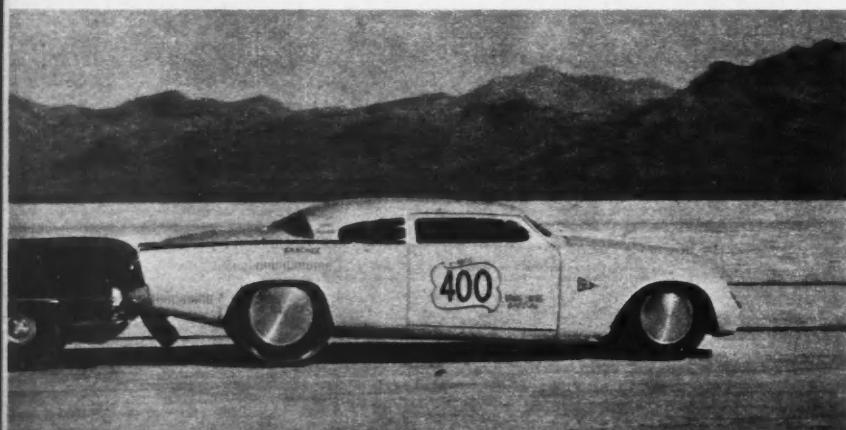


Starter Bob Higbee seems to be wasting his time pumping Karol Miller to find why the Miller and Short '60 Ford goes so fast. Karol cooled a new record of 157.92 mph.

One of the best built cars on the salt was the Mardon-Only class C Roadster. The '29 Ford roadster body covers a tube frame and a '56 Chevy engine of 255 cu. in. Car ran one-way at 205.83; set record of 190.153 mph.

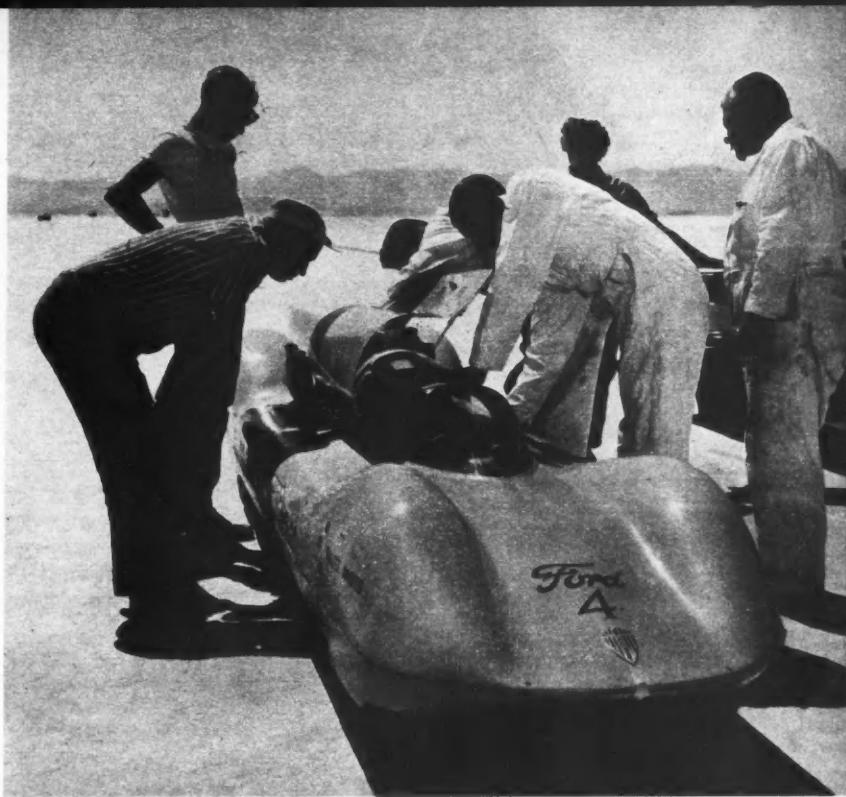


Norm Thatcher drove his 1960 Dodge Dart to victory in two classes. His best one-way speed was a really hot 173.07 mph with a 513 cu. in. class A engine. His record with the A engine was 164.0875; with a B engine, a small type with only 482 inches, it was 164.2455 mph. Both of Norm's engines were '60 Chryslers, bored and stroked and fitted with all the goodies.

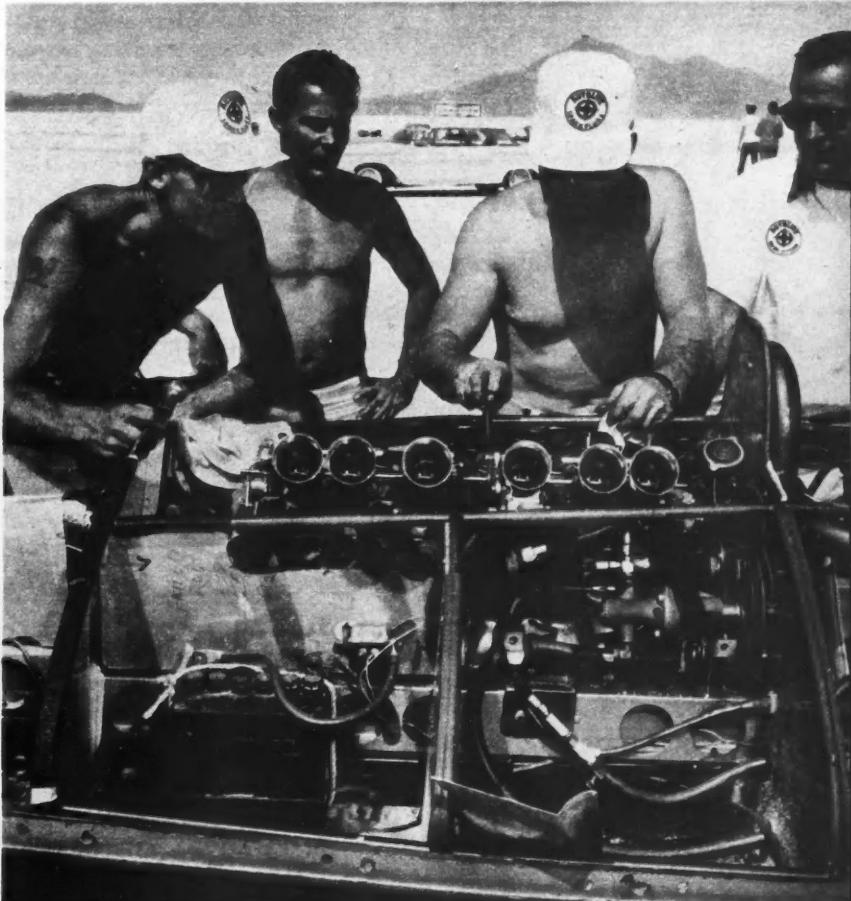


One of eight Studebaker cars at the meet, this one, listed as the Sanchez-Krasne-Himatic-Lacosta entry, was much the fastest. Running in the A Competition Coupe-Sedan class, its 6-71 blown Chrysler pushed it to a record 220 mph.

After trying for many years the Vesco Riley four-banger streamliner grabbed the record in its class (D) only to lose it the next day to Bill Burke's new car.



As Bill Burke, left, and Bill Stroppe watch with a critical eye, Vern Houle installs the head on the Falcon engine in Burke's streamliner after tech check.



One of the Bonneville National officials must measure bore and stroke of each engine that sets a new record. The tool shown here was made to simplify the job of accurately measuring stroke lengths.



DECEMBER, 1960

CONTINUED ON PAGE 50

Renown L. A. Roadster Club held their first roadsters only show this past summer in terraced parking lot of the Hollywood Bowl. Attracting some of the West's finest cars, the event was proclaimed a huge success, a hint of what the future will promise. Pictured are but a few of the many fine roadsters entered.

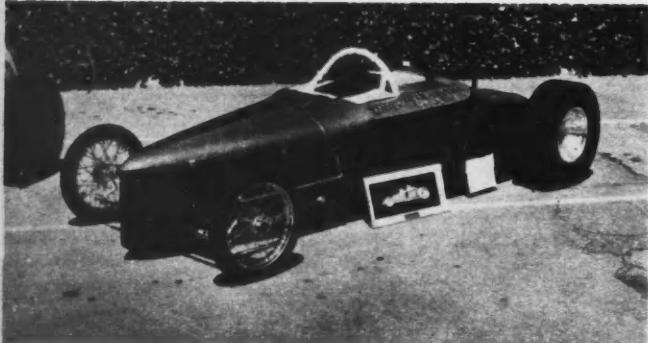
SHOWTIME USA

What could be more natural for the "fresh-air fiends" than the Los Angeles Roadster Club's first annual outdoor exhibition



OPEN AIR ROADSTER SHOW

Photos by Bud Lang



Beautiful orange colored '27 Ford 'T' roadster belongs to team of Cerny and White, Compton, Calif. Competition car runs 301 cubic inch '58 Corvette mill, turned 212 mph at Bonneville, 121 mph at the drags, features much chrome.



Don Emmons 1912 Buick roadster was entered in Antique class, was one of oldest present. 30 inch wheels were the most in their day, were typical of cars of that period. Interior of Don's roadster was redone in black leather.



Unique pickup at right is the handiwork of Billy Foster, owner of My Auto Upholstery in Pasadena, Calif. Bill built the car from Model 'A' and 'T' parts.

Right. Roth's famous Outlaw, fiberglass bodied roadster designed on the lines of a Model 'T', was entered. Roadster features chromed Chev mill, wild paint.

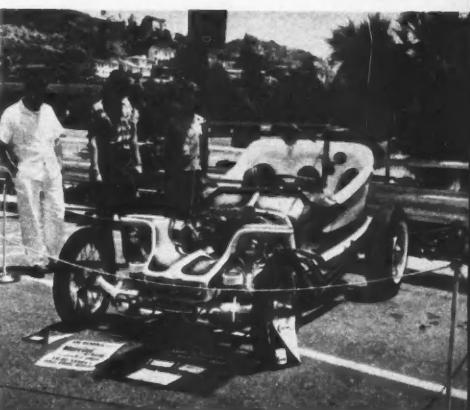
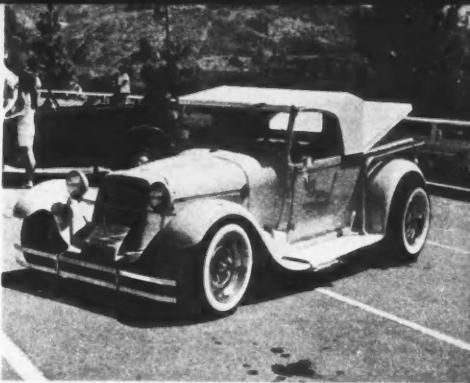
One of the cleanest roadsters in the show belongs to Rolland Pitzen of Redondo Beach, Cal. '24 roadster-pickup body is an authentic fiberglass reproduction of the new hard-to-find T's.

Below right. Restored to better than original condition is this meticulous '29 Ford roadster owned and rebuilt by Larry Anderson, Oxnard, Calif. Running gear is all chromed, engine is flathead.

Left. '29 Ford competition roadster runs under Enderle Hardware banner, it is powered by a 258 cubic inch Dodge. 4-71 GMC blower mounted vertically is fed by Enderle Injector, really moves.



Bill Moore brought his channeled '32 from San Jose. Car features big V-8 mill, outstanding upholstery thruout.



Rare 1935 Indy car has been fitted out with late model engine and transmission. Miller body is restyled for street.



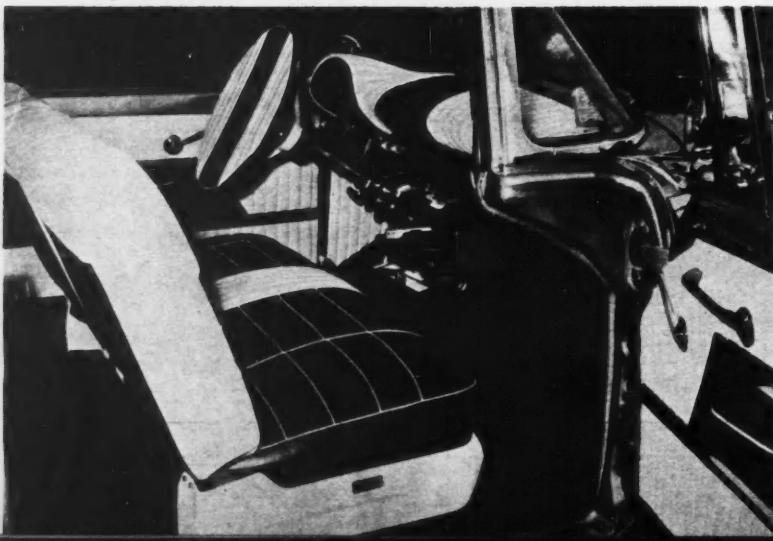
DECEMBER, 1960



FROM NEW

'TIL NOW

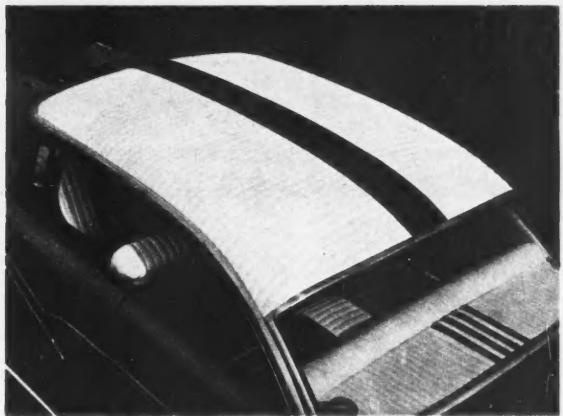
*Frank Balzano started
restyling his '56 Ford
when brand new—
and he's still at it!*



A total of 53 trophies has been collected by Frank Balzano's '56 Ford from Bristol, R.I. He performed all work on car save for interior that was jobbed out to West End Auto Top in Brooklyn, N.Y. Pleated and rolled white Naugahyde used with blue leather. Exterior of Ford is sprayed in special blue enamel.



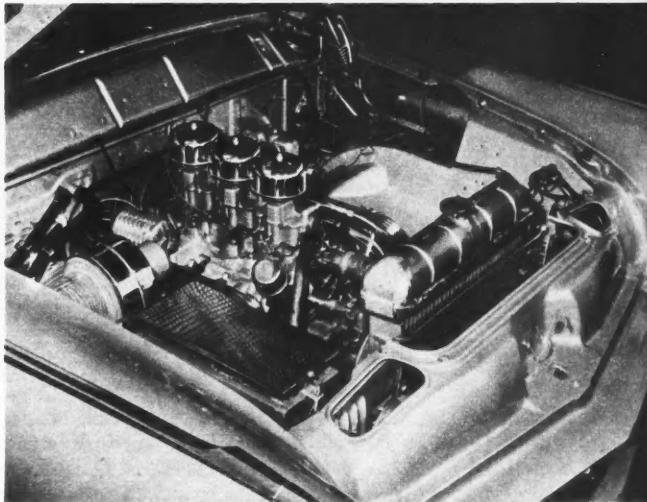
End pieces for both front and rear grilles are pirated from a '59 Edsel — four of 'em to be exact — and are installed horizontally in pan.



Top is padded — a modification that readily marks this car as a show piece — in white Naugahyde and blue leather. Scheme is pleated and roll with perpendicular designing.

Dual spotlights, fender sprouting lakes pipes, Mercury skirts with '53 Merc chrome teeth, a set of special Lancer-type discs are added.

Warmed-up Thunderbird engine gives go to Balzano's beauty. Among bolt-on equipment are several pieces added for show as well.



Hooded '56 Merc station wagon taillights are naturals. Rear grille is same as front counterpart with Edsel end pieces and Buick center.



Photos by John Eddy

DRY LUBRICATION

No break-in time needed
when engines are given a
unique chemical treatment



Photos by Bob Hardee

BY DON FRANCISCO

HAVE YOU EVER LOOKED at the machined surface of an automobile part through the lenses of a 100 power microscope? Few hot rodders and engine builders have, but they should. What they would see would not be the smooth, shiny surface the naked eye sees but a series of parallel scratches of varying depths and particles of metal clinging to the edges of the scratches. To the fellow who understands what goes on in an engine, it isn't a pretty sight.

Even the most disinterested motorist knows that a new engine must be given at least some break-in time before he can run it mile after mile at high speeds. As long as he knows this it isn't important that he doesn't know that the break-in time is necessary to allow the

engine's machined parts to mate themselves to each other. This mating is the wearing away of the roughness of the surfaces that is visible through a microscope by actual contact between the parts.

We've been led to believe that the lubricated parts in an engine never contact each other because of the film of lubricating oil that separates them. It's obvious that if this were true the lubricated parts would never wear out. Actual contact between the parts occur throughout an engine's life but the severity of the contact and its destructive effect on the parts are much more pronounced when an engine is new. This is because the oil film that separates the parts is not thick enough to prevent the tiny metal particles clinging to the edges of the microscopic scratches in their surfaces from touching each other when one part moves along another.

What actually happens when two pieces of metal are in contact and one piece is moved along the other, such as a piston or piston rings move along the surface of a cylinder, is that the heat of friction causes minute areas of the surfaces to become so hot that an area of one fuses, or welds, itself to the area of the other with which it is in contact. As the members continue to move in relation to each other something must give because the fused area must either separate or move with one or the other of the parts. The result is that tiny particles of metal are torn out of one or the other of the parts and remain on the other part. When the parts are new and contact between them is easy because of the roughness of their surfaces, this action continues until all the particles that cause the roughness are torn from the surfaces and flushed away by the lubricating oil. Such parts are then considered broken-in.

Under normal conditions the wearing-in process new parts must go through doesn't have any immediate destructive effect on the parts but it can shorten their life expectancy and efficiency. However, it is possible for the welding and tearing-away process between the surfaces to become so severe that damage discernible with the naked eye is caused to them. Words used to describe damage of this type are "scoring," "scuffing," and "galling." Scuffing during break-in can be so severe that the parts involved must be replaced to make the engine serviceable.

Scuffing of load-carrying metal surfaces isn't a condition peculiar only to automobile engines. It is a problem in all types of industry. It has become so much of a problem that several companies have been formed for the specific purpose of finding ways of combating it and friction. Most of these companies have devoted their time to the development of various types of what they call "Dry Film Lubrication," or "Solid Film Lubrication," but at least one of them has concerned itself with a method that gives finished metal surfaces the ability to attract and hold lubricating oil.

Actually, the two general methods of combating scuffing and friction are related because the method of improving a surface's ability to retain lubricating oil is also a step in the preparation of surfaces for the application of dry film lubricants. The principal company engaged in the development and application of this treatment is the Parker Rust Proof Co. and the name they have given the treatment is "Parco Lubrite." The

Parker Co. describes the operation as "a simple, inexpensive chemical treatment that produces on wearing surfaces, without the use of electric current, a non-metallic, oil absorbent coating that permits rapid break-in of moving parts without scoring or scuffing and reduces subsequent wear."

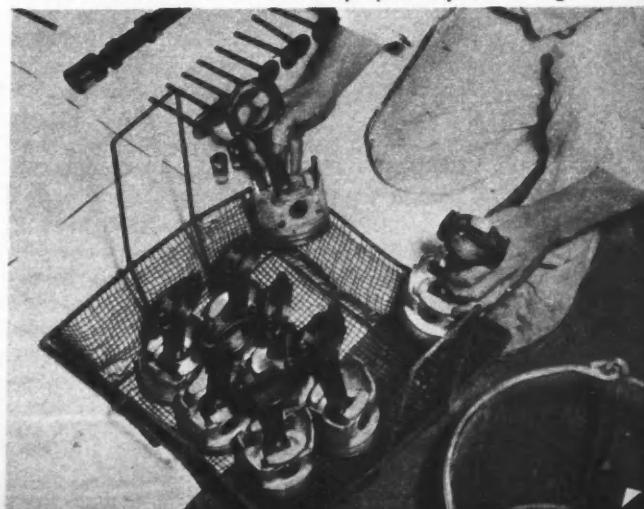
The Parco Lubrite treatment is used on parts made of iron and steel. In automotive applications it is used on engine cylinder walls, piston rings, pistons, cam-shafts, valve lifters, rocker arms, fuel pump arms, and fan pulleys. It is also used on gear shifting forks, universal joint crosses, differential gears, etc. Its effect on these parts has been proved to improve performance of contacting surfaces during the break-in period by preventing scuffing and, consequently, to reduce subsequent wear.

Treating parts by the Parco Lubrite method requires special chemicals and equipment but the process is not so involved that it is beyond the reach of plants that have a comparatively low output volume. The result of the treatment is the chemical conversion of the surfaces treated to a non-metallic, oil absorptive coating that consists chiefly of iron and manganese phosphates. Because the coating results from actual chemical reaction of the solution with the metal surface, it is chemically combined with the base metal of the part and, therefore, has greater adherence to the part than could be expected from any coating that depends on natural attraction.

During the Parco Lubrite process the burrs and other roughness on machined surfaces are dissolved by the chemicals in the solution used. This alone improves the surface by eliminating the microscopic high spots that are the major causes of scuffing. The chemical also acts on the surfaces to create a network of minute pores. The non-metallic crystalline coating that is formed uses these pores to bond itself to the metal. The thickness of the material in an object such as a piston is usually increased only .0002 to .0003-inch by the process. When necessary this thickness increase can be reduced approximately one-half by buffing or burnishing the treated surface.

CONTINUED

Dick De LaCruz of the San Diego Plating Co. placing piston and rod assemblies in a wire basket preparatory to cleaning.



As far as lubricating oil is concerned, a Parco Lubrified surface absorbs oil the way a blotter absorbs ink. A drop of oil placed on a treated surface spreads quickly and is retained by the crystalline structure whereas a drop of oil on an untreated surface spreads very slowly and is not retained. After the crystalline structure has been worn away the pores created in the metal by the process take over the duty of retaining oil.

Application of a dry film lubricant to cast iron or steel surfaces differs from the Parco Lubrite treatment in that the Lubrite treatment, or a similar treatment that does the same thing, is only the first step. Surfaces of aluminum parts are prepared by anodizing or a similar treatment. After the crystalline structure has been created on the surface by spraying, dipping, or brushing, and then the part is baked for a specified length of time at a specified temperature to cure the resin. The resin acts as a binder to bond the lubricant to the metal. The result is that the crystalline structure becomes impregnated with the lubricant, for which it provides a secure footing. The thickness of the coating is usually .0003 to .0005-inch.

Dry film lubricants differ from Parco Lubrite by being substitutes for liquid lubricants. Their purpose is primarily for applications that must operate without the benefit of liquid lubrication, or, at best, with limited liquid lubrication. However, they are even more efficient and have longer service lives when used with liquid lubrication.

The useful life expectancy of dry lubricants depends on how a part is used. It is determined by the number of cycles of movement the part makes during its life, the load on the part, and, in some applications, by the temperature at which the part must operate. For some applications, such as on the joints of an airplane's control system or landing gear, or on the operating mechanism of a typewriter or business machine, they will more than likely last the life of the machine. On the internal parts of an automobile engine, which are subjected to continuous cycles of operation and must carry comparatively high loads at elevated temperatures, they may have a life of only 2000 or 3000 driving miles. However, the advantage the lubricants provide on parts subjected to extended periods of operation is that the damage they prevent during the break-in period enables the parts to operate efficiently for longer periods of time than they could if the break-in had been less favorable. In an automobile engine this could mean several thousand extra miles of operation between overhauls, with better performance during those miles.

Dry lubricants aren't a new development. Their principle and value were known before this century began; however, it was the aviation industry created by World War II that accelerated their development. Development work is stronger now than it ever was as the companies who produce dry lubricants try to supply the increasingly critical needs of aviation, missile, and electronics industries. Some of the trade names of dry lubricants are Electrofilm, Everlube, Drilube, Henderlube, and Teclube.

Materials used as the lubricant in dry lubricant coatings differ for specific applications. They can be broken down into two general types, which are laminar solids and soft metals. Some of the laminar solids are graphite,

molybdenum disulphide, boron nitride, and mica. Some of the soft metals are lead, tin, copper, indium, zinc, silver, and barium. Graphite or molybdenum disulphide, or blends of these two materials, are used for most automotive applications.

The resins with which the lubricating materials are blended are thermo-setting substances that become solids when subjected to heat. They act as binders to hold the lubricant particles together and to the material to which they have been applied. A typical curing period and temperature for the binder used by one company is 40 minutes at 325 degrees. After the curing the coating is not affected by gasoline, oil, solvent, hydraulic fluids, grease, water, etc. When properly applied the coating will not soften, blister, lift, crack, peel, nor corrode when the part is soaked in any of several liquids.

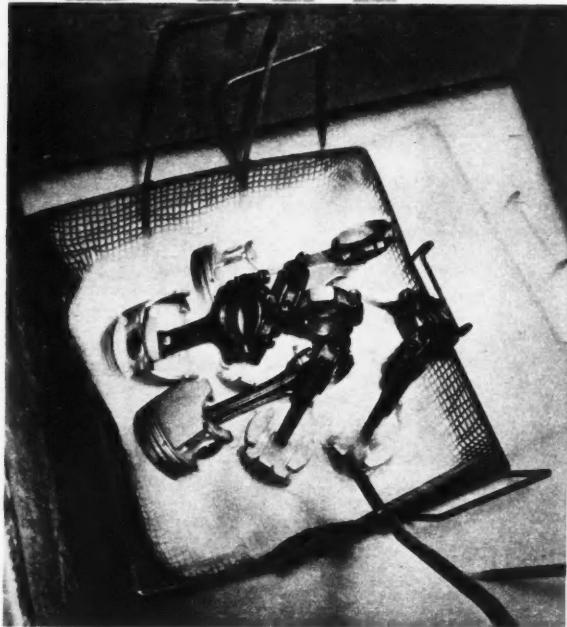
Hot rodders are usually eager to accept anything that will improve the performance of their cars but sometimes it takes a bit of selling to convince them that they actually need something that is new to them. For Parco Lubrite and dry lubricant treatments the selling job isn't too difficult. The theme of the selling spiel is one word: friction.

Friction between an engine's internal parts is one of the most difficult things with which a hot rodder trying to improve the horsepower and torque outputs of an engine must cope. His standard methods of reducing friction to the minimum is by giving the parts more clearance than they actually need. However, there are some points where additional clearance cannot be used, such as between cam lobes and valve lifters, and there are other points where additional clearance doesn't do any good, such as between the thrust sides of the pistons and the cylinder walls. The only method of reducing friction at points such as these is by changing in some way the characteristics of one or both of the metals involved at each friction point so that the drag created when one of the metals moves on the other is reduced. This is exactly what Parco Lubrite and dry film lubricants do by eliminating metal-to-metal contact between the parts with a material that has very low friction characteristics. Reducing internal friction in this manner adds horsepower to an engine's flywheel. Horsepower at the flywheel is the main thing about engine performance that interests a hot rodder.

The other advantage of the treatments, which has already been explained, is the better break-in they provide. Parts that are undamaged by scuffing can create and hold higher compression and combustion pressures and provide valve action that follows the specifications for which the engine's camshaft was ground. These very desirable features of engine operation are in addition to the longer life proper break-in guarantees for the parts.

The comparatively short life of dry lubricants in engines is of little importance to hot rodders engaged in competition. The lubricant will easily last longer than a competition engine is run between overhauls. Dry lubricants become even more important to such engines because the chassis in which the engines are installed make it practically impossible to run them for break-in purposes. A dry-lubed engine doesn't need any break-in time because the break-in was accomplished chemically when the lubricant was applied. You can safely stand

DRY LUBRICATION



In the cleaning tank, perchlorethylene vapor forms a bluish-white fog around the parts. This vapor removes oil, grease.

on the throttle of a new engine that is protected by dry lubricants but you're taking a chance of causing damage to its parts if you stand on the throttle of a new engine that is not so protected. The reduction in friction effected by the lubricant is an extra dividend.

Parts of a competition or street engine that should be treated with dry lubricants or, where applicable, at least with Parco Lubrite, are its pistons, piston rings,

CONTINUED



After the vapor cleaning, the parts are rinsed in cold water. Parts must be perfectly clean for the base coating treatment.



Spraying friction surfaces of the pistons with dry lube compound. Compound used by San Diego Plating Co. is Teclube.



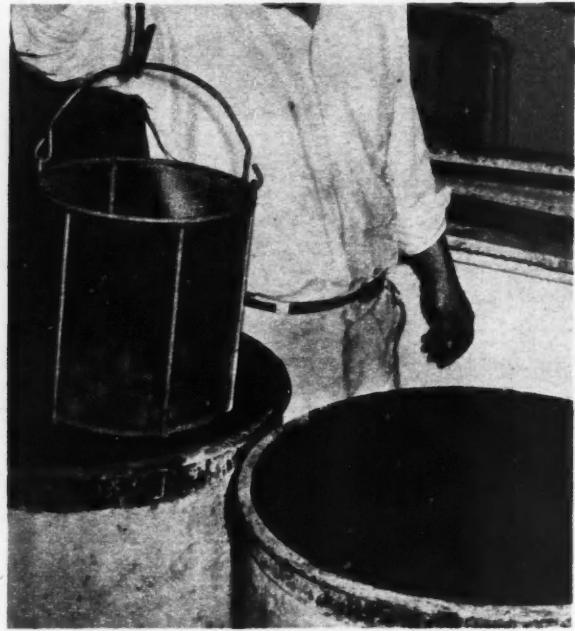
Dick uses asbestos gloves to slide the piston assemblies into an oven for one hour, thirty minute baking at 300 degrees F.

DRY LUBRICATION



Dry-lubed piston at left has not been used, similarly treated piston at right shows little wear after 2000 miles use.

the cams on its camshaft, valve lifters, rocker arm friction points, rocker arm shafts, and the ends of rocker arm push-rods. The recommended procedure for valve stems and guides is to hard-chrome the stems and dry lube the guide bores. Some companies also treat the surfaces of main and connecting rod bearing inserts. Dry lubricants aren't recommended for crankshaft bearing journals and crankpins because it has a tendency to



Bearing inserts, after being cleaned, are immersed in a solution that gives their surfaces a base coating for dry lube.



Friction surfaces of the bearings are sprayed with dry lube compound. Only a thin layer is required. It should be even.



Sprayed bearings are placed in the oven and given same baking treatment given pistons to cure the lube compound.

peel from these surfaces. Cylinder bores can be done, but one of the major companies that applies dry lubricants says that the results of treating cylinder walls aren't worth the time and money involved; however, if the walls are done, the piston rings shouldn't be treated. Treating both the walls and the rings will make it practically impossible for the rings to seat.

A rough estimate of the price of a complete dry lube

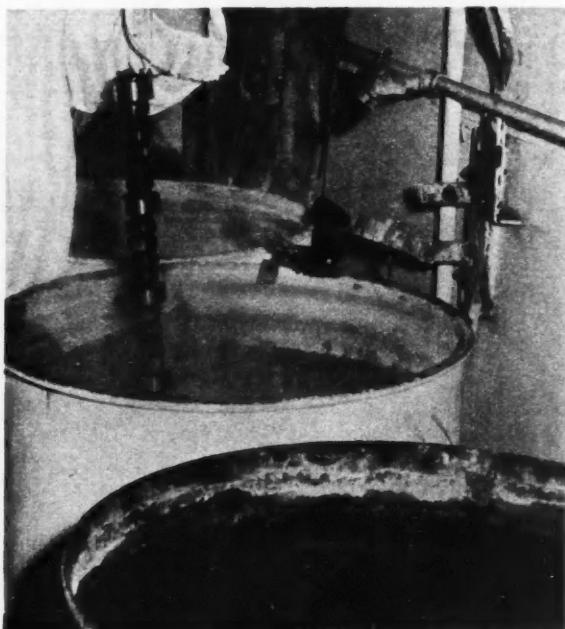
job for an average V8 engine is thirty dollars. Figured percentage-wise in relation to the cost of the moving parts in a competition engine—three hundred dollars for a cylinder block—this is about four percent for a guarantee against break-in damage and for better performance. The percentage would be a little higher for a stock or near-stock engine. These are bargains that are hard to equal these days.



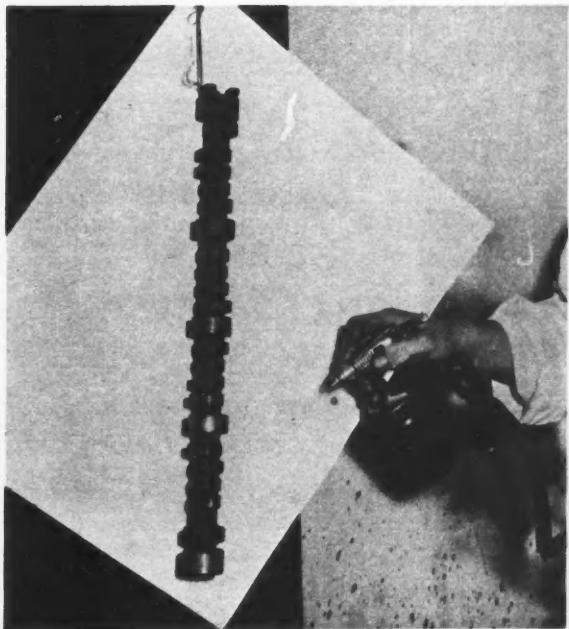
Comparison of standard bearing insert, top, and dry-lubed insert. Lubed surface has characteristic dull grey coating.



Camshafts receive a different cleaning treatment than other parts. They are treated with electric current and scrubbed.

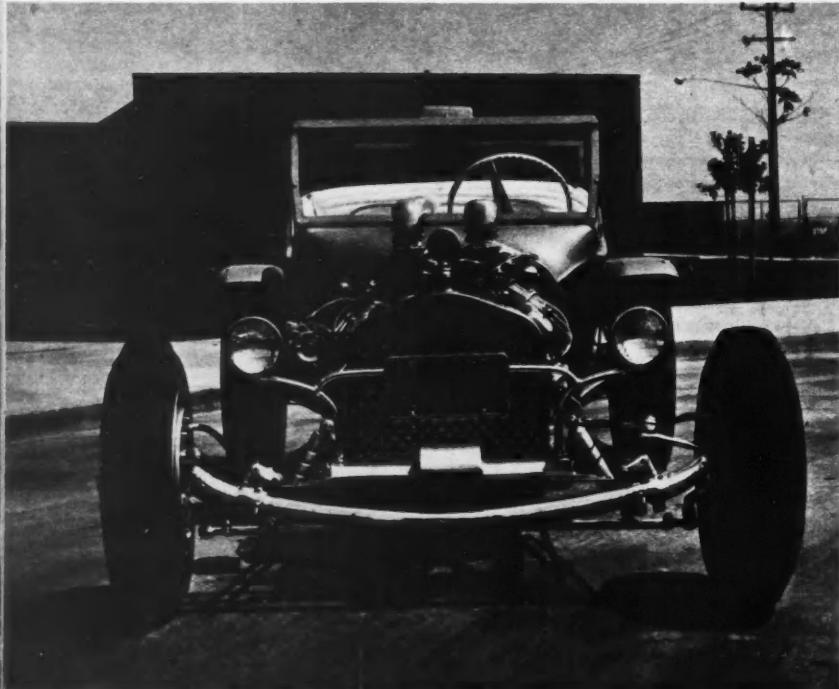


After being cleaned, the camshaft is immersed in phosphatizing bath for three minutes to prepare its surface for dry lube.



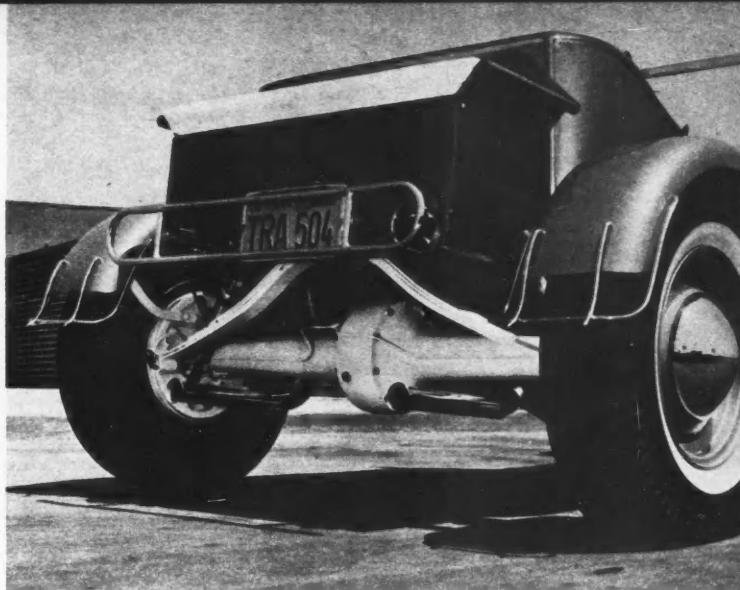
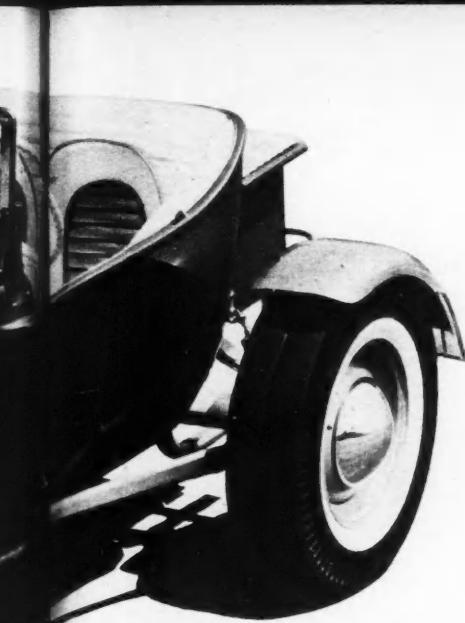
The camshaft is sprayed in the same manner and with same compound as any other part and it receives same baking.

CLASSY GLASS 'T'



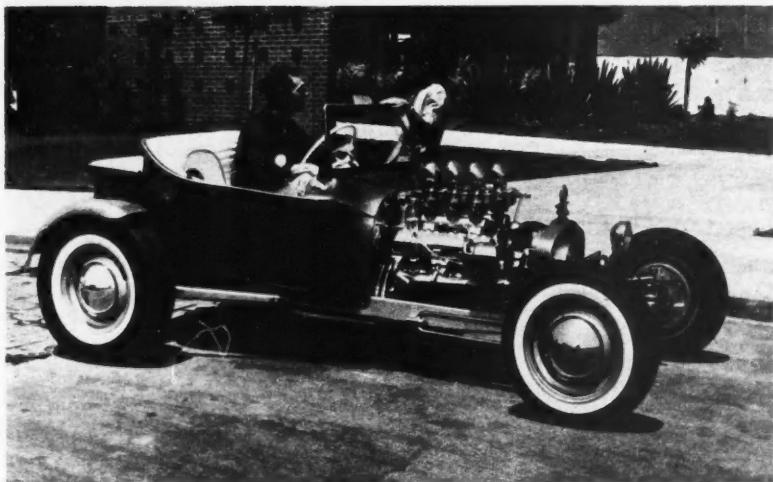
Spending three years on second rod's construction is paying off for Rolland "Buz" Pitzen. Like the '29 roadster he formerly owned and built, his latest '24 'T' roadster-pickup is beginning to earn its share of trophies in car shows in the western states. Car chroming is liberal.

Left. Suicide type front-end is composed of a V-8 60 tube axle, '39 spindles, a '32 spring on 'A' hangers and '40 Ford brakes. Small headlights are converted fog light units. Painted 'T' shell surrounds custom mesh. Shocks are Chevy tubulars both fore and aft.



'39 Ford rear end fitted with a Model 'A' spring makes up the rear. Frame is from a '29 'A', switched end for end for greater length up front. Three tube crossmembers were added, frame kicked 8" at rear.

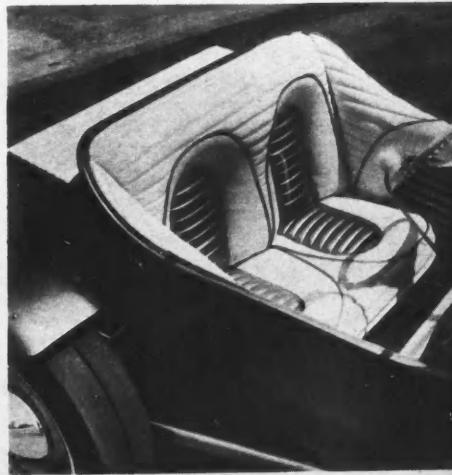
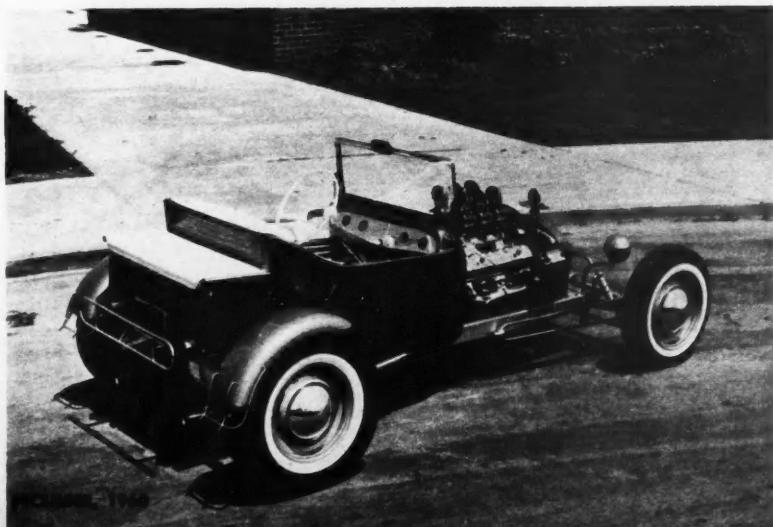
Photos by Bud Lang

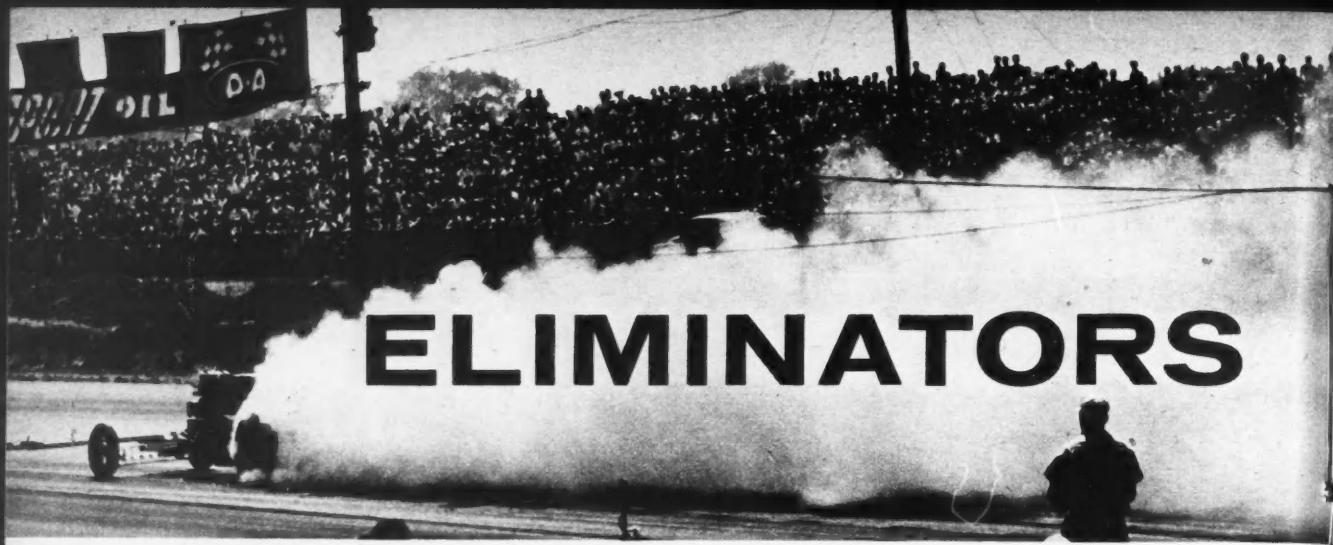


Avid hot rodders, Buz and Martha build their cars as a hobby. Starting with a fiberglass 'T' body shell, Buz brought roadster to completion. Cost: \$1250.

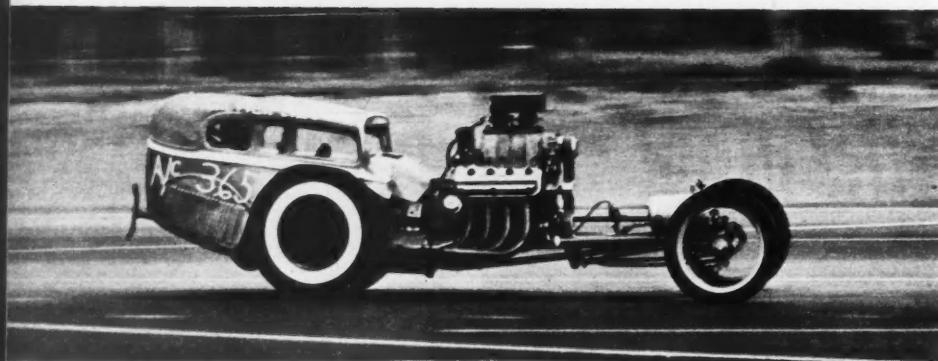
Lower left, Painted a Lake Placid Blue lacquer, fiberglass 'T' roadster-pickup is a real jewel. Buz designed his own pickup box, crafted it from sheet metal.

Below, Jack's Top Shop, Paramount, Calif., did the stitching on the interior. Windshield posts and frame are handmade. Chromed dash and custom cowl.





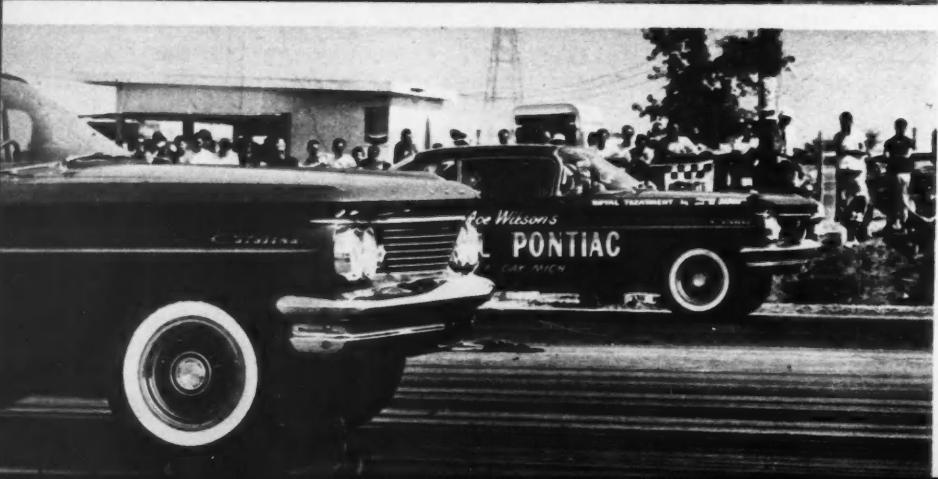
ELIMINATORS



Hauling through the traps at 152.80 on its trophy run is the Lickliter Bros. A/C machine. Its ET of 10.36 was good enough for M.E. win.



This is the start of one of best races of the meet. George Montgomery (left) bested the DCB coupe from Texas after two previous false starts.



Pleasing the thousands of spectators were the Stock class run-offs. Coming out victorious was Jim Wanger, driving a 1960 Pontiac.

FOR '60

Hard fought battles raged in all Eliminator classes — consistency made the winners.



The happy driver and crew, the car that did it, and the prize for doing it. Leonard Harris, driver of the Albertson Olds, accepts congratulations and the keys to a 1960 Ford Station wagon — D-A Lubricant's award for being Mr. Eliminator '60.

BURNING RUBBER STINKS! But to the "chosen ones" at the NHRA sixth annual National Drags, the acrid smell of smoking slicks grabbing for a bite of the Detroit Dragway will long be remembered in a fond manner. The man who will cherish it more than any other is Leonard Harris of Playa Del Rey, California. Driving the Albertson Olds, he won the A/Dragster class, set low ET of the meet at 9.25 and was crowned this year's Mr. Eliminator by beating out the Tennessee Bo-Weevil in the final run off. What more could anyone want? Maybe nothing — but he got it anyway — a 1960 Ford Station Wagon, the prize for being top Eliminator.

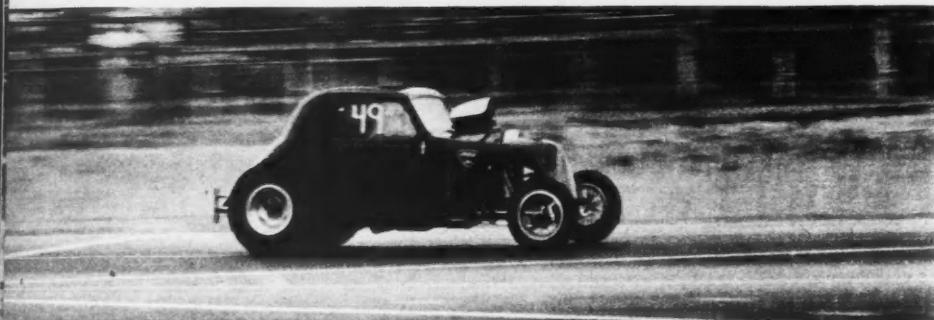
NHRA introduced the Elapsed Time Increment Eliminator System at this sixth Nationals. This system relies solely on elapsed time of the cars and disregards their class entirely. Top Eliminator cars had to have an ET of 10.29 or better, Middle Eliminator 10.30-11.49,

Little Eliminator 11.50-12.99, Street Eliminator 13.00 and up. Thus, class winners who before were restricted to a certain Eliminator class could, if their ET's warranted, compete in a higher elimination class.

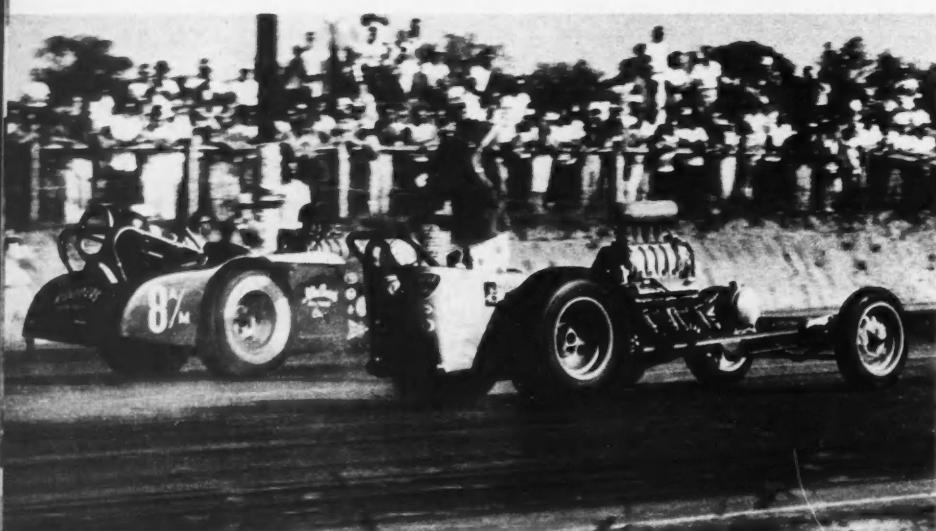
Other Eliminator winners in this year's classic were: Howard and Pete Lickliter, taking home Middle Eliminator honors with their A/Competition rig; Little Eliminator went to George Montgomery and his A/GS machine in hard fought battle with the DCB coupe from Texas; the beautiful Custom Speed Shop entry — a DeSoto powered '34 roadster — with Courtney Lee Scott at the wheel, shut down all competitors for the Street Eliminator title. The Stock Eliminator run-offs, a real crowd pleaser, went to Jim Wanger in a 1960 Pontiac.

Due to press dates, this month's feature covers only the Eliminator winners. Next month's CAR CRAFT will bring a complete report on the hundreds of competitors — all of which had a real run for their money.

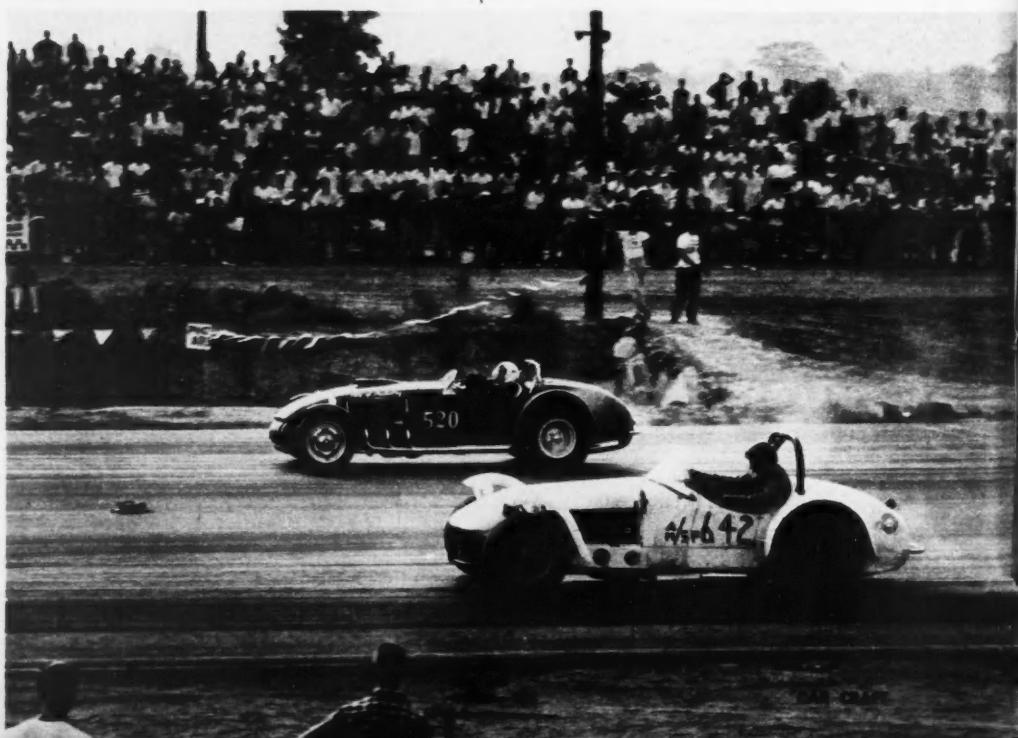
ELIMINATORS



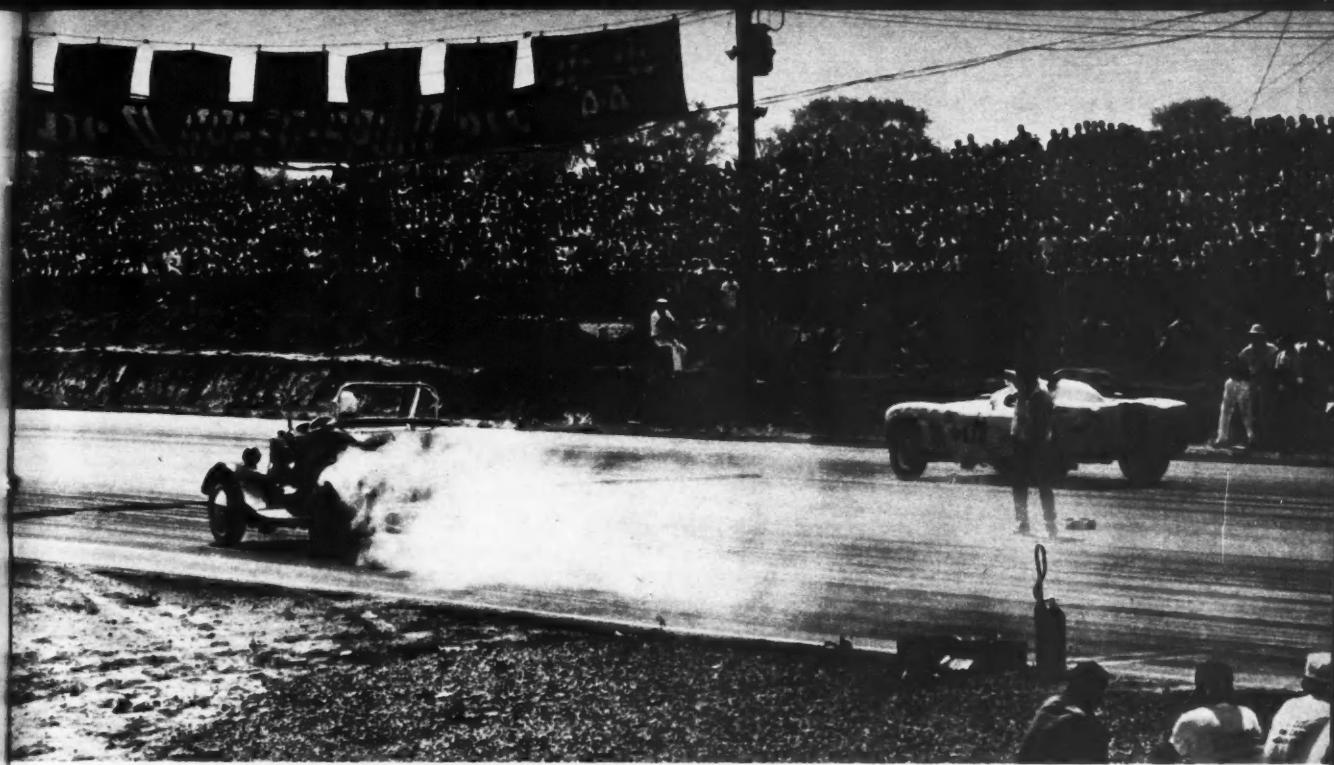
The Ratican, Jackson, Stearns A/Altered was top dog in its class. During record run it set 10.78 ET class record.



This is the one that decided the Top Eliminator. Tennessee Bo-Weevil (left) didn't have quite enough to break the Albertson Olds winning streak.

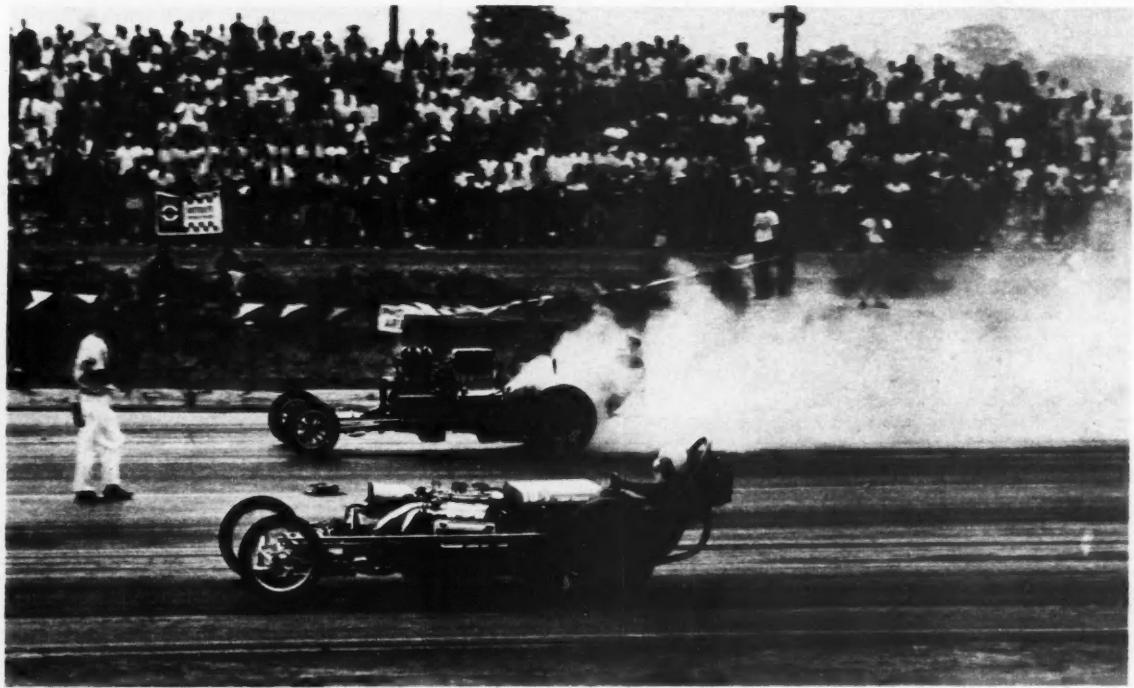


There was an interesting turn-out in the Modified Sports class. Sam Parrott (520) bested all comers in class with his Cad powered special.



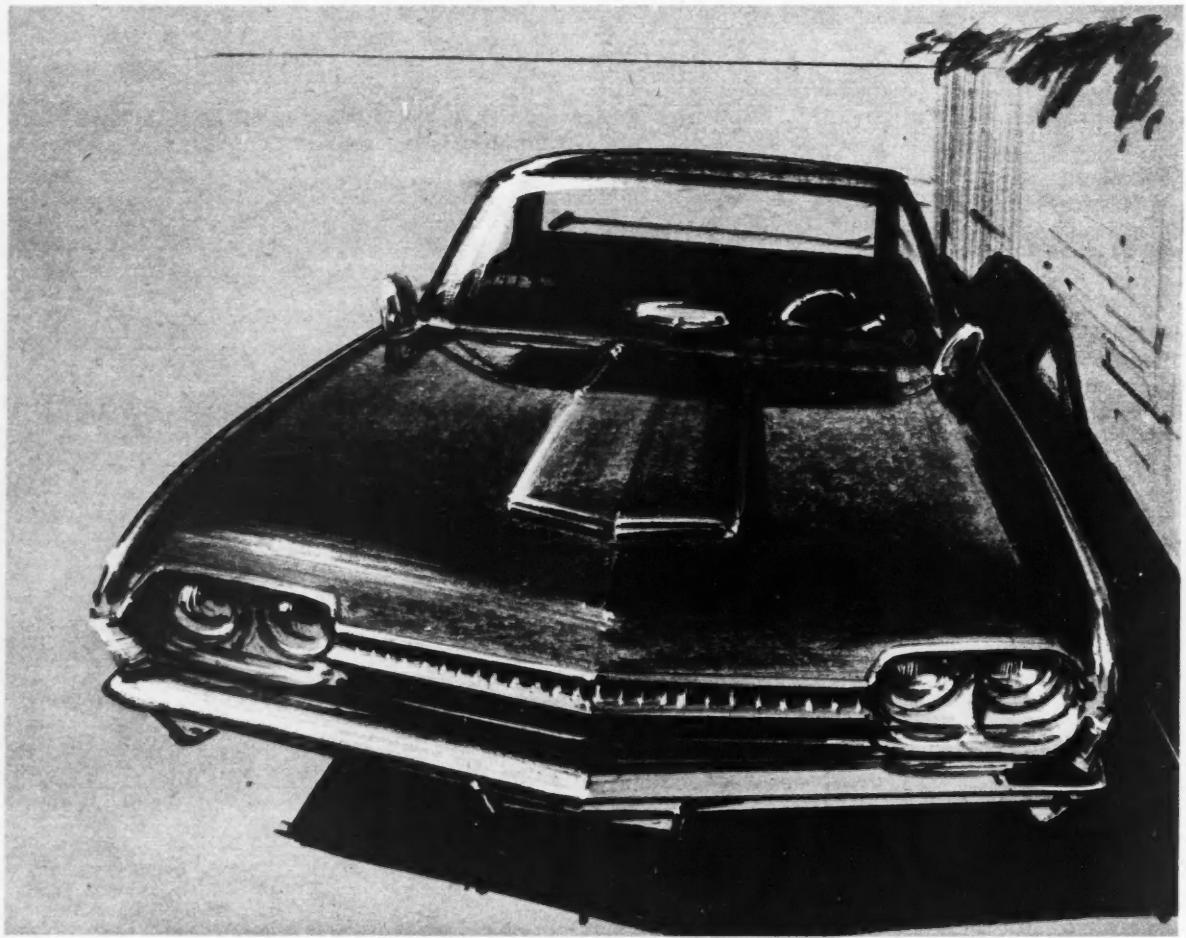
Leaving some smoke coming off the line is the Custom Speed Shop entry from Washington, D.C. Courtney Lee Scott drove the beautiful roadster to the Street Eliminator title. He turned 107.78 with ET of 13.08 on the final trophy run.

Photos by Brottier, D'Olivo



Two dragsters — four engines, AA/Dragster races never failed to line the fences. Dragmaster Two-Thing (closest) won class over Hurry Up III from Ohio. Dode Martin drove Two-Thing to meet's top speed — 171.10.

RESTYLING



NEW FROM FRONT TO REAR, the '61 Thunderbird presented an interesting challenge to our team of restyling experts. Here's an account of their design changes:

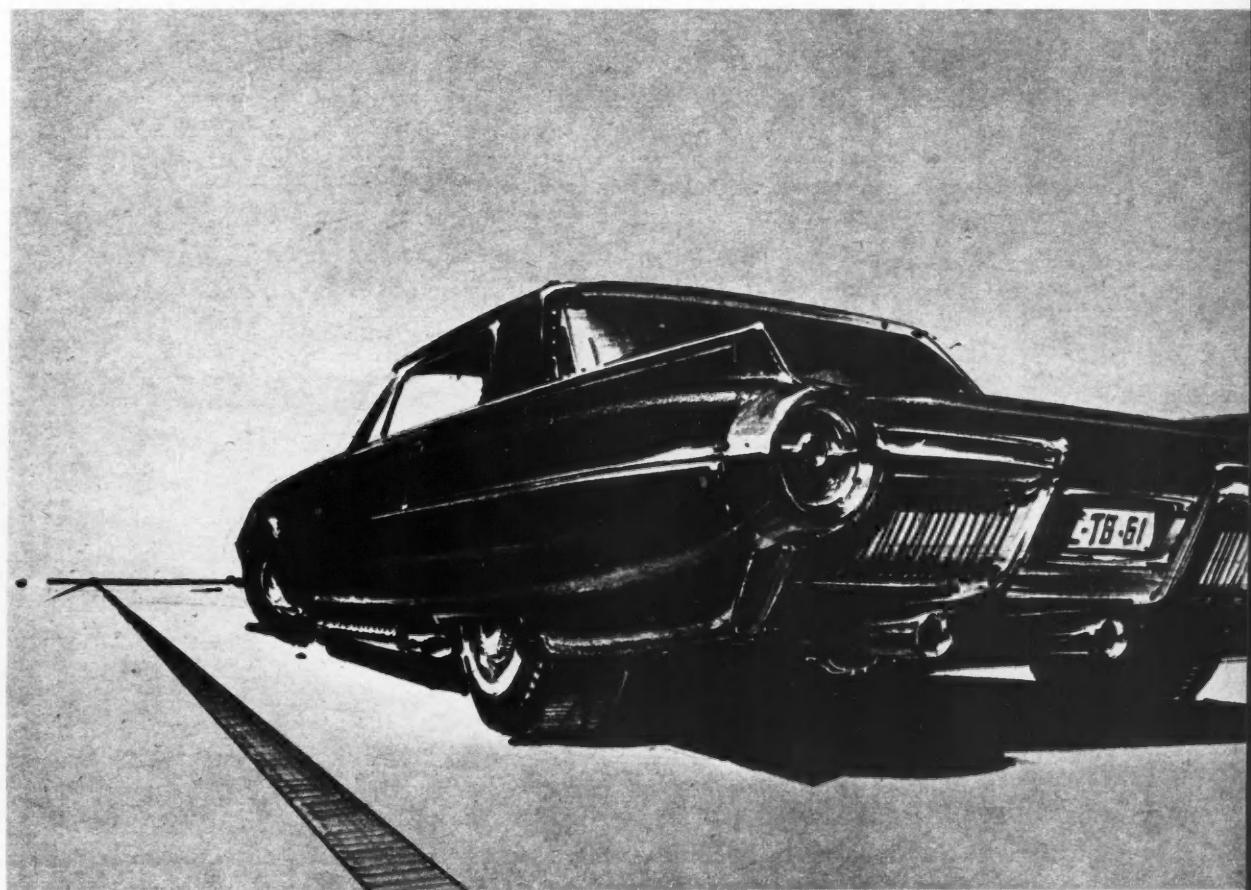
The front end features a sectioned '59 Chevrolet bumper for protection of modified grille shell housing either '60 Comet or '60 Merc assemblies. '60 Dodge headlights are recessed a bit and the upper portion of the stock 'Bird bumper above the headlights is cut away to allow installation of '60 Ford parking lights.

Side chrome is discarded, but a '59 Cad trim piece is added and it extends from rear to the middle of the door.

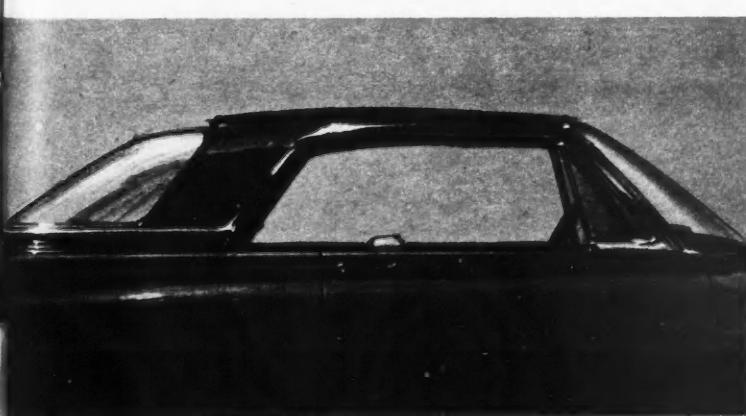
Either '60 Dart or '59-'60 Buick taillight lenses are used in the rear. The stock bumper is removed and dual rolled cavities are recessed with ribbed aluminum added. License plate is recessed also.

Top modification features an optional installation of a late Chrysler product windshield which will have to be trimmed to fit.

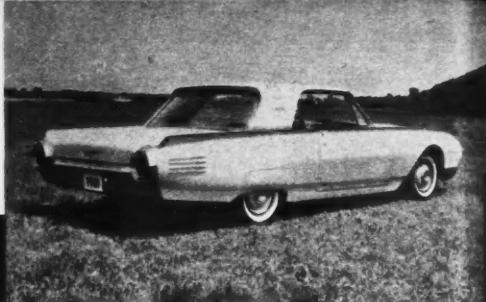
from mild...



illustrations by
chuck pelly and bob hubbach

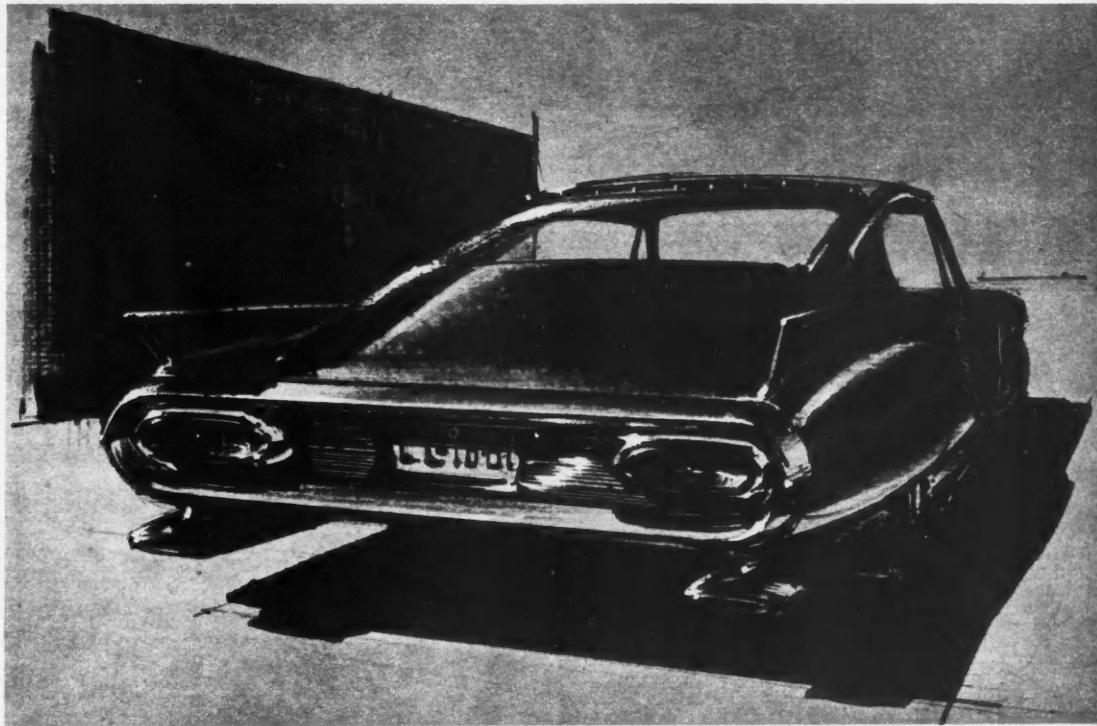


RESTYLING...to wild



Well known artists, designers and stylists, Charles Pelly and Bob Hubbach bring their talents to Car Craft and present their renditions of our monthly restyle feature.





AFTER CASHING OUR check for a million given to us by someone named Michael Anthony, we proceeded to spend a small fraction of it on the Bird. Here's what we did with an unlimited budget.

The first thing to go was the top and it was neatly replaced by a fast-back adaptation constructed of fiberglass with a partial panel and the window from a '60 Dodge.

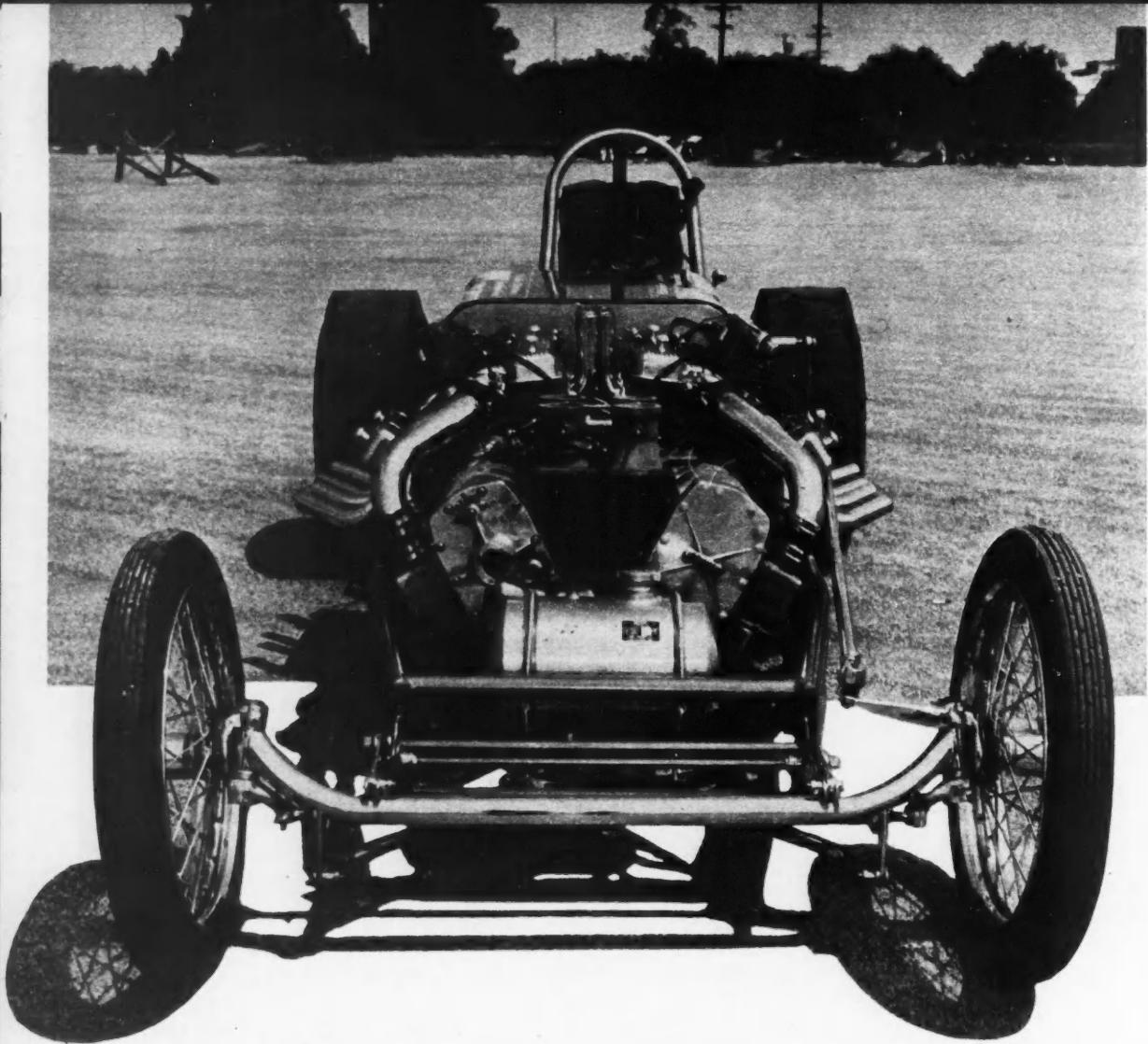
Up forward, we see a '60 Buick bumper assembly protecting the molded grille cavity that is filled to capacity by '56 Lincoln horizontal bars and a '57 Cad blade bumper. The deeply recessed headlights are again '60 Dodge set in handformed openings.

An Aston-Martin type engine vent is cut into the side. The bottom door edge is altered so that it now opens at the line of the stock roll that runs the length of the car. Side pipes have rolled housing; '57 Plymouth station wagon tail gate bumpers tip special pods molded to rear quarter panels.

Two '59 Pontiac rear bumper units are used to frame the rear grille. Filling the recessed area is ribbed aluminum paneling with extra-recessed license plate and dual Pontiac taillights.

Final step is to lower the Bird all the way around about 3-inches. And there you have two restyled versions of the spankin' new Thunderbird.





DRAGMASTER TWO-THING

*Newest twin-engine dragster
is one of the hottest*

BY BOB BEHME

IN THEORY, ANYONE can win at the Nationals—but of the hundreds of cars on hand for this year's big Detroit battle, only a handful of jet-hot specials had any real chance at the top prizes.

Before the Detroit meet took place, long before the winner pulled up for his trophy, most experts agreed that this year the big winner would come from the growing ranks of twin-engined dragsters. Most experts also agreed that two men with one of the best chances at the big win were Jim Nelson and Dode Martin, whose Dragmaster Two Thing was probably the newest twin-engined thunderbolt running at Detroit. The experts were fooled to some extent. The consistent, single-engined Albertson Olds was Top Eliminator. But the Two Thing was a close runner up. It was also top dog in the highly competitive AA/D class and set top speed of the meet at 171.10.

Some of the experts knew that when the Two Thing arrived at the Michigan drag strip it was short on experience. It had but two try-out meets behind it—one at Pomona, California and one at Milwaukee, Wisconsin. The story few experts knew was that the Two Thing was a car neither Jim Nelson nor Dode Martin really wanted to build.

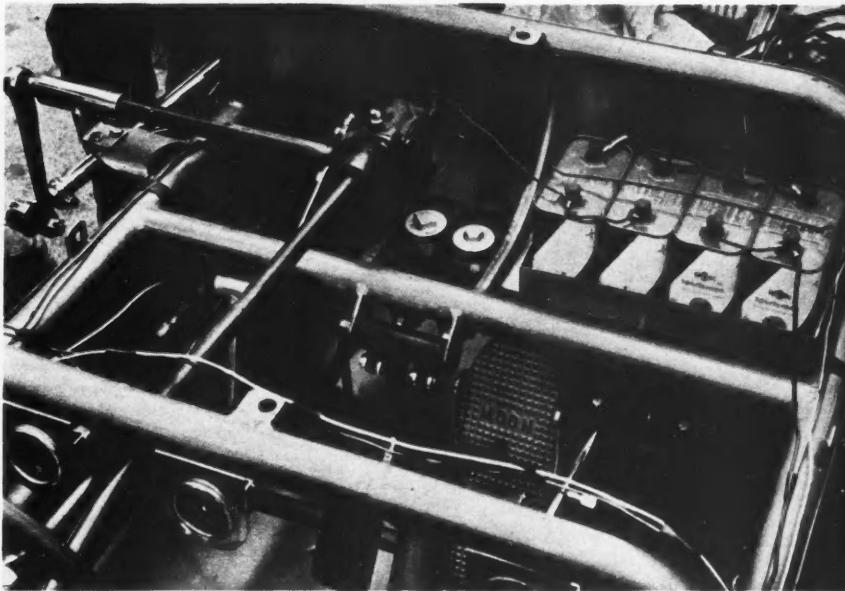
Nelson and Martin have been active in drag competition for many years. Their startling successes with Dragmaster I, Dragmaster B and Dragmaster II, in '58, '59 and '60 helped them to start their own company which now manufactures Dragmaster chassis, engines and accessories. While Nelson and Martin are aware of the fact that publicity on the drag strip will never hurt sales, they are still in competition because they like drag racing.

"A big part of drag racing for us," Martin said recently, "is trying to be the quickest and the fastest." Like Martin, Nelson finds the big satisfaction in the big machinery: this means top e.t. and top speed.

For a long time satisfaction came regularly at the wheel of their single-engined, blown, Chevy dragsters. But in recent months, competition got tougher as Glenn Ward, Tommy Ivo, Chet Herbert and a host of quick and fast drivers made the big shift to twin engines. In recent

CONTINUED

Photos by Bob Behme



Ignition current is supplied by four hot shot batteries mounted behind firewall. Goodyear-Halibrand spot brakes from two master cylinders. Each cylinder works one of two rear wheel spots to give safety margin. Steering is modified Crosley.



Right side of rear axle has been shortened 13 inches and axle has been equipped with Halibrand quick change. Unlocked rear end uses 3.78 to 1 ratio. Knob on far left is release for 16-foot parachute. A portion of quick change unit is chromed.

DRAGMASTER TWO THING

months it was a rare day when the single-engined dragster could crack through a field of dual-powered machinery for an all-out win.

Nelson, who has always felt (and continues to feel) that twin-engined dragsters are tanks, shrugged his shoulders. "If we're going for top times," he told Dode, "we've got to be progressive, got to keep up with the times. We've got to make the move to twin-engined machinery."

Although the decision was made early in June, Nelson and Martin were reluctant to switch from a one engined to a two engined car. "Any dual-engined car we build," Nelson mumbled, "may not be as successful as our single-engined machinery." It was fact, not pessimism, that Nelson was expressing, for there are problems inherent in dual-engined cars which are not found in single-engined machinery.

Nelson and Martin chose twin Chevy engines for their new car for the same reason that they have used Chevy mills in their single cars. "Chevy," Martin says, "is cheaper, lighter and more powerful."

"Chevy weighs up to one third less than other engines," Martin said, "and consequently, you can build a lighter chassis."

"A Chevy delivers more power for its size," Nelson added, "A well-built Chevy drag engine will deliver more than one horsepower per cubic inch displacement."

The result is the Dragmaster Two Thing, a 1980 pound thunderbolt with twin 354 cubic inch, 1980 Chevy

engines which each delivers more than 525 hp - for a total of close to 1100 hp between them.

The move to two engines, gave Nelson and Martin a choice of ways to mount the engines in the chassis and a choice of ways to tap the power potential. They could mount the engines in line, or side by side.

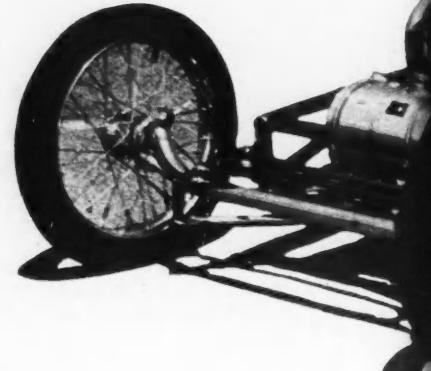
"The decision was not difficult," Nelson said later, "The only way we could get the proper weight transfer to the rear wheels was by mounting the engines side by side."

The two men feel that the right weight distribution is possibly the most important single factor in dragster design. Nelson has spent several years experimenting with varying weight distribution ratios. By experience, he has found that 70/30 is best on single engined cars and he sees no reason to feel this ratio is changed on dual-engined machinery.

At 70/30, Nelson claims, the dragster has a tendency to wheel stand, but he says the tendency is easily controllable. He has tried balance variations up to 85% weight on the rear wheels and find that at 80% or more, the wheel stand is virtually uncontrollable. He has never experimented with less than 70% of the weight on the rear wheels because he says, "You must have the least possible weight on the front wheels to get the maximum rear wheel bite. 30% seems to be close to that minimum."

To make exact weight ratios possible, and to allow for variations in weight transfer to suit variations in track surfaces, the twin engines are designed to move fore and aft on the chassis a total of four inches. This has been accomplished by special front and rear engine mounts, chassis design, and a sliding drive shaft. The step in the chassis, ahead of the driver's compartment, is a part of this consideration.

Special mild steel front axle was fitted with special spindles and hubs. Hub was made from blocks of chrome moly and machined to shape. Rim, spokes are Harley Davidson. 3.25-19 Avon tires, tubes are used, inflated to 40 psi.



Although the chassis design, with the exception of the step, is identical to commercial Dragmaster chassis, the twin-engined chassis has been lengthened, widened and strengthened. The parallel rails and angled reinforcements are made of 1½ inch, 90-wall chrome-moly tubing.

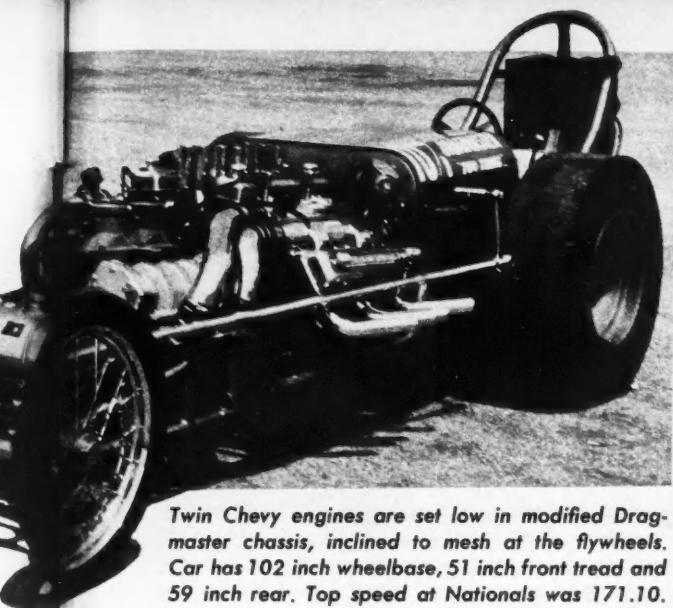
The wheelbase would have remained at the 96 inch length used on the single-engined Dragmaster cars and on the commercial Dragmaster chassis but it had to be changed because of the need for additional length for the engine movement. As the car has been designed, the wheelbase is 102 inches, front tread is 51 inches and rear tread is 59 inches.

Front suspension has been constructed from 1020 mild steel, seamless tubing. The king pins have been welded to the tubing. Nelson prefers to use mild steel for front axles because axle alignment is better and welds are less critical than if chrome-moly were used. The mild steel is arc welded with a special Utec 680 rod.

"If you use chrome-moly," Nelson says, "you are forced to use special welding techniques. Even then, stresses are set up in the metal and the unit has to be normalized and heat treated. All the way through the job you run the distinct danger of alignment problems."

Torsion bar suspension has long been a favorite of both Nelson and Martin. They have used front torsion suspension on the Two Thing. The bars, which lead from the front axle





Twin Chevy engines are set low in modified Dragmaster chassis, inclined to mesh at the flywheels. Car has 102 inch wheelbase, 51 inch front tread and 59 inch rear. Top speed at Nationals was 171.10.

along the chassis, were made from 4340 chrome-moly which has been heated to a 39 Rockwell.

The front wheels were built specially for the dragster by Nelson and Martin who have made similar cycle-type wheels for their earlier cars. The center hubs are designed for the dragster and were made from sections of welded chrome-moly, machined and designed to take '28-'48 Ford races and Ford tapered bearings. Harley Davidson rims and spokes were hand fitted to the special hubs. The front wheel size is 3.25-19 and Avon tires and tubes, inflated to 40 psi are mounted to the rims.

A Crosley steering unit was modified to center steering and adapted to the car. The sector shaft has been lengthened 15 inches. A special 8 1/4 inch Pitman arm was made for the car by the Ross Company. The entire steering assembly, as has the entire car, has been magnifluxed. The front axle, hubs, king pins, knuckles, and steering assembly have been chromed.

In the rear, the basically '41 Ford rear end has been narrowed 13 1/2 inches on the right side and fitted with a Halibrand quick change center section. Currently, Nelson and Martin are running 3.78 to 1 ring and pinion gears. The differential gears are unlocked. Both Nelson and Martin feel that a car equipped with an unlocked rear end goes straighter, handles better.

9.00 x 16 M & H slicks are mounted to the rear. The tires are gener-

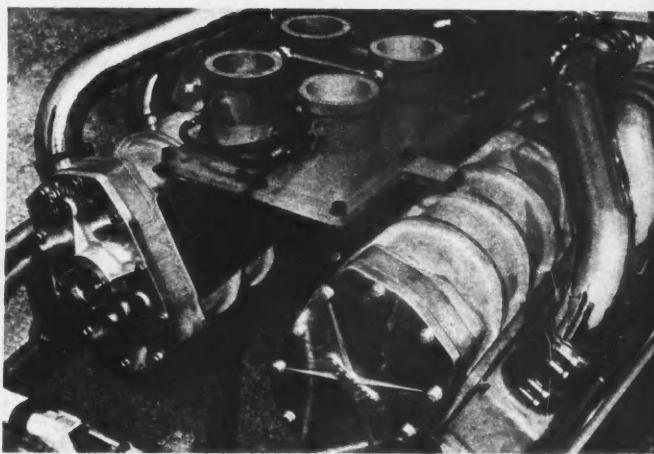
ally inflated to 40 psi but inflation and even tire size are changed if track conditions warrant. The quick change unit is decorated with a chromed cover, which positions the transmission control.

The wheels are equipped with Goodyear-Halibrand spot brakes. Each rear wheel has two spots. Two master cylinders are mounted on the firewall, ahead of the driver, beneath the cowl. Each master cylinder operates one of the two sets of spots on the wheels. If one cylinder goes out, the car is still equipped with sufficient stopping power.

Nelson and Martin have long been active advocates of additional braking action for high-speed dragsters. Most of their earlier machinery has been fitted with parachute braking. The Two Thing, like its predecessors, is equipped with a 16-foot Diest Parachute Company chute. The chute is mounted behind the driver, on the roll bar. The chute cord end is fitted with an eye and bolted to a special plate on the lower frame assembly. The release handle for the chute is on the left, beside the steering wheel.

The left engine is reversed, but with this exception, both mills have identical modifications. The engines, built from '60 Chevy heads and blocks, are 3/8 inch over stroke and .080 over bore to give a total displacement of 354 cubic inches for each Chevy.

Intake and exhaust valves are 1/8th inch oversize, a special Italian valve obtained from Moon Engineering fit



Twin GMC blowers are now equipped with separate pumps but the system may be changed. Blowers are now fitted with Potvin covers and modified Hilborn injectors which proved themselves at the Nationals.

the bill. Stock Chevrolet push rods are used.

The engines are fitted with complete Racer Brown drag kits including rollers, a Racer 39R cam and valve springs. Valve timing—opening, closing and lift, are identical on the two engines.

Valve spring pressure, according to Nelson, is critical on hot Chevy engines such as the ones used on the Two Thing. "If you want the car to run its very best," Nelson says, "you have to change valve springs every two meets—no matter whose springs you use, no matter how good they are."

Nelson keeps valve springs tight. He shims them to the point of coil binding. "There's no room for float," Martin says, "The valve system is almost desderomic—you simply can't fling a valve, it has to come back."

The over-bore engines are fitted with Forged True pistons and chromium-vanadium rods are attached. A series of trial-and-error tests over the years have shown Nelson a piston ring combination that works best on hot Chevy engines such as the two in Dragmaster's latest machine. Nelson uses Seal Power oil rings on each piston. "These are the only oil rings I've found which are chrome-faced, work independent of the pistons," Nelson says, "and because of this, we use the rings over and over." Nelson uses Grant compression rings because they seat immediately with no time consuming break-in.

The crankshaft has been hard
CONTINUED

900x16 M & H slicks are fitted to the rear, inflated to 40 psi. Rear tread is 8 inches wider than front and tires are often changed for track conditions.

TWO THING

DRAGMASTER

chromed and balanced by the Crankshaft Company. The weights were made from stock steel, welded to the arms. "You have to counter-balance with a $\frac{5}{8}$ stroker," Nelson claims, "you can't get enough weight without it." Properly counter-balanced, a stroked Chevy has a greatly reduced tendency to damage shafts. Main bearings are McQuay-Norris.

The crankshaft, piston and rod assemblies plus flywheel were balanced as a unit for each engine. On the right engine, which is fitted with the clutch, components were balanced with the clutch.

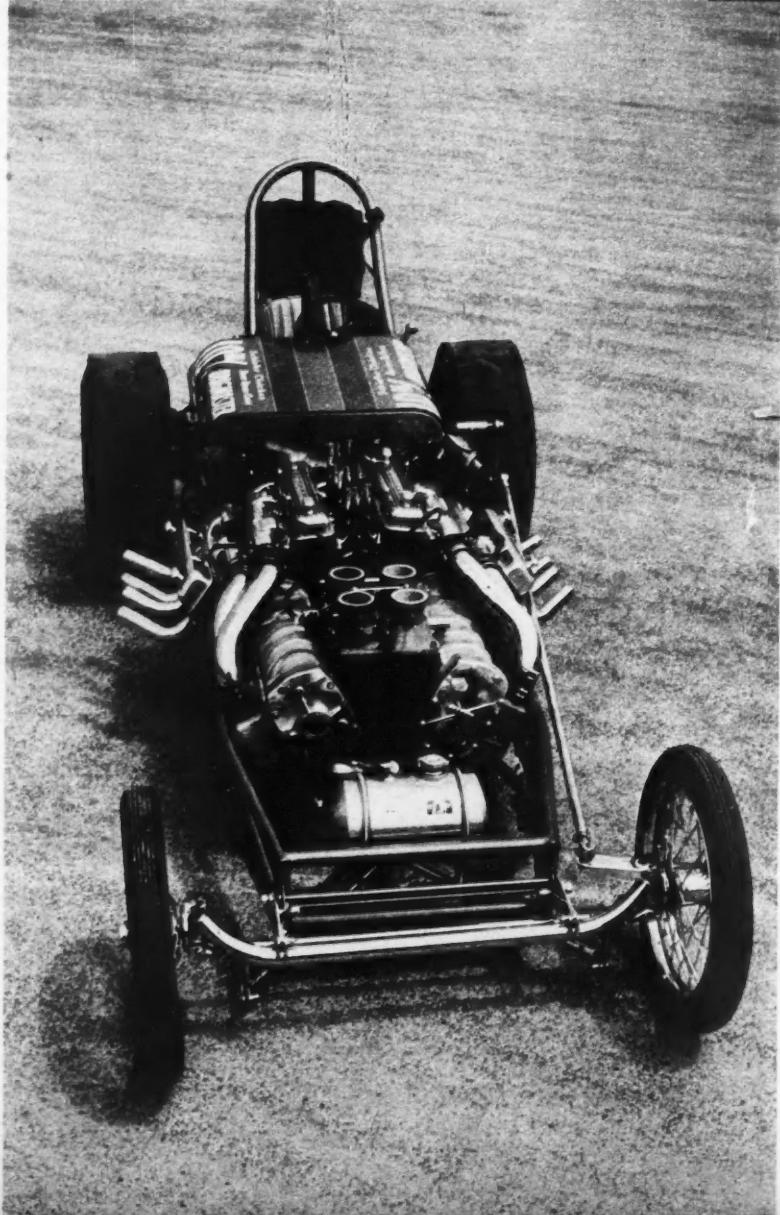
Nelson and Martin have a slightly unusual method of building up a hot Chevy. Nelson feels their system reduces expenses slightly. They purchase fitted blocks which come complete with Moraine bearings, pop-up pistons and other factory options. "By the time we punch and O-ring the engine and add McQuay-Norris bearings," Nelson says, "We can sell the parts we don't want and come out ahead on the deal."

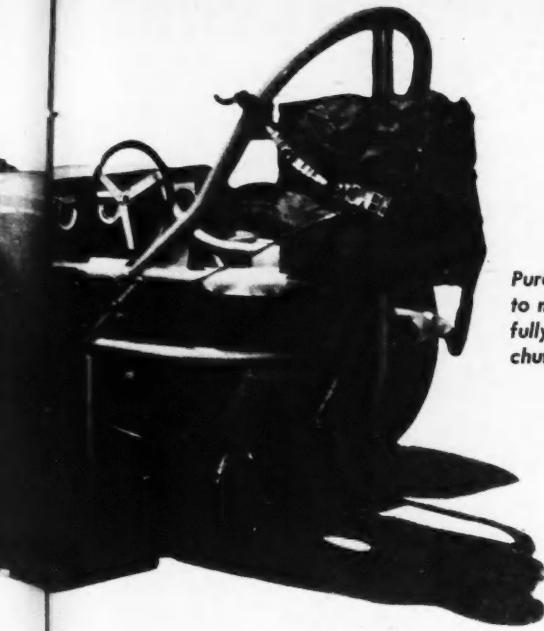
The engine is run without standard head gaskets. Paper water gaskets are used and the copper o-ring compression gaskets are fitted to the heads. "The way the studs and water passages are arranged," Nelson says, "you have to use the o-rings exactly as recommended—there just isn't room for deviation."

The two tried using roller timing chains but to their surprise they found that the chains stretched almost immediately. They found, through experimentation, that the stock Chevy timing chain will stay tight longer than the roller chains. "Even the stock chain loosens too soon," Martin says.

Changes were made in the oiling system to compensate for the new

Two Thing is built on modified Dragmaster chassis which has been widened and lengthened. Engines are designed for four inch fore and aft movement to allow balance variation for varying asphalt surfaces. The engines put out 1100 hp.





Pure gold Naugahyde upholstery used to match body paint. Driver's cockpit is fully upholstered. Diate 16-foot parachute is mounted on the rear roll bar.



engine position and to compensate for the left-hand reversed engine. On the left engine, the gearing was changed so that the oil pump continues to operate in a stock manner. Because the engines are laid over several degrees to obtain flywheel mesh, special oil drain holes have been drilled in the downward head on both engines to improve oiling. There has been no change in the pan on either engine, but the left crank (which has an oil pressure hole 180° on the stroke) had to be changed. Because of the engine reversal, the hole was positioned wrong — Nelson drilled a second hole, on the other side of the shaft, leaving the first hole intact.

Ignition is supplied by two 6-volt Spalding Flame Throwers. Four dry cell batteries, mounted on the fire wall trigger the ignition. Champion A63T plugs are used and the timing is advanced 39° but an exact curve is not available at this time.

GMC 671 blowers, with 1 to 1 crank drive, are mounted low, ahead of the engines. Fuel is metered by modified Hilborn injector systems. In the beginning, Nelson and Martin tried using a single pump to feed the engines: the men are not certain one pump can handle the job over a wide rpm. Just before they left California for the Nationals they installed two pumps — one for each engine and each Hilborn bank. They feel that

additional testing is required before they decide to settle on one or two pumps. The blowers are fitted with Potvin injector adaptors and covers.

Power is obtained by tilting the engines so the flywheels mesh. Dual Buick rings were used to obtain the proper mesh and both flywheels are within 1° of each other at TDC.

The front engine mounts are fabricated from $\frac{3}{16}$ inch mild steel plate. They are fitted to the chassis on runners with four holes (one inch apart) drilled to them. The engine brackets and pads slide along the chassis.

In the rear, the engines were attached to a full-width $\frac{1}{4}$ inch steel plate. A flywheel housing was built for the left engine and closes off the rear of the engine since there is no clutch there. The right engine, which is fitted with a Schiefer two-disc clutch assembly, has been covered with a lip of $\frac{1}{4}$ inch steel plate which is a close-to-conventional scatter-shield. The rear mounts also move along the chassis.

Torque from both engines is fed to the rear wheels through an Offenhauser Chevy-to-Early Ford adaptor. The Culbert in-and-out box fits to the clutch.

The movable drive-line, built to handle the engine adjustments, consists of a sleeve pinned to the pinion gears through two u-joints welded together. The outer torque tube

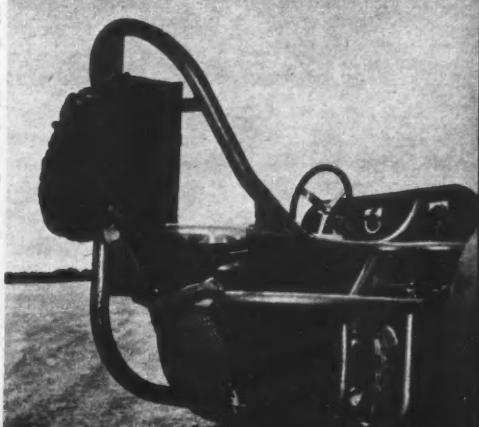
slides over this and the combination extends or reduces four inches.

The driver's compartment is contained behind the rear axle, inside the curves of the tail section and the roll bar. The seat has been fabricated of mesh and covered with lightly padded Naugahyde. The car is painted a vibrant, easily recognizable, gold and the seat upholstery is a combination of orange and gold.

Currently, Jim Nelson drives the single engined Dragmaster cars and Dode Martin has been concentrating on piloting the dual-engined Two Thing. Jim's younger brother Tommy, has been breaking in on the single-engined cars under the guidance of both Nelson and Martin. Tommy has been taking over more and more of the driving chores and it is anticipated that he will soon be handling the dual-engined car.

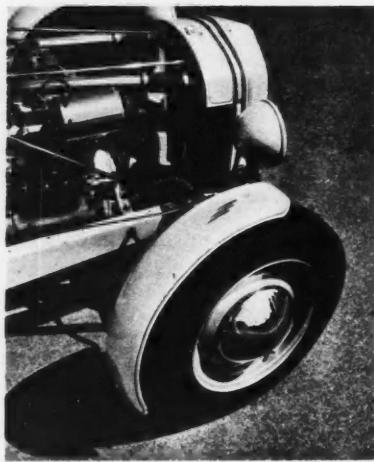
But no matter who is at the wheel, the car is a going bombshell — the record at the Nationals has proven that. In fact it is safe to say that this is one of the fastest cars in the world — that almost didn't get built.

Driver's compartment is to the left, with extra chassis members on the right to compensate for chassis widened to accept the extra width of twin engines.

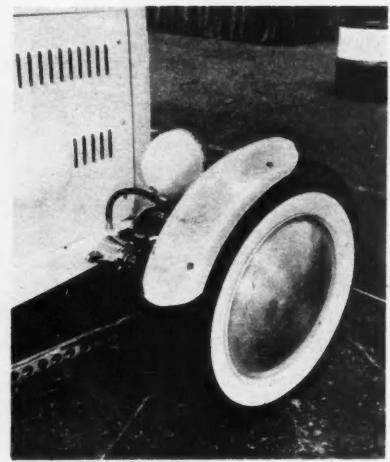


FENDERS FOR ROADSTERS

Make them appear as part of the car's styling—not a tacked on accessory



The small front fender on this street machine originally was part of a spare tire cover. A two-piece design, outer part of fender overlaps the inner part.



Affording better protection from rocks and water, this fender evolved from a spare tire cover ring, features clean look. Brackets fasten to backing plate.

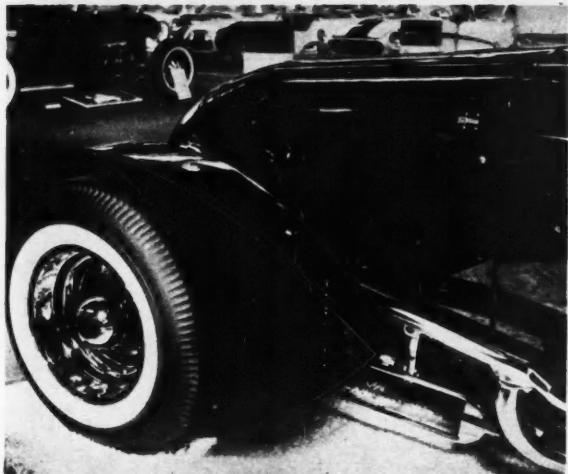
Photos by Barris, Lang



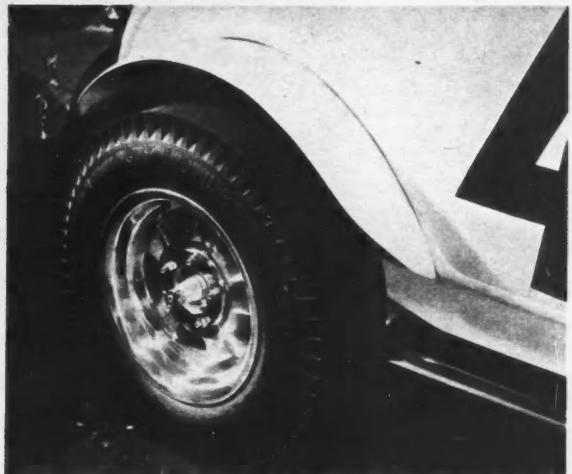
With running boards removed from his deuce, this owner bobbed the fenders at the lower frame edge. Corners were rounded off and fender edge recontoured with body lead.



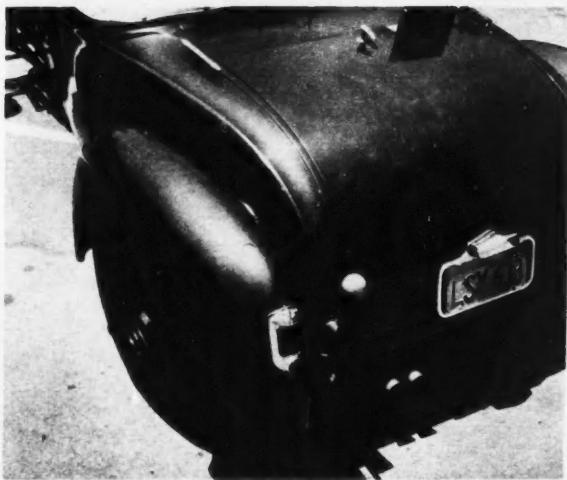
Channeled 'A' roadster features near stock fenders. Front edge was trimmed off straight at lower edge of body. With body channeled, running boards and aprons are removed.



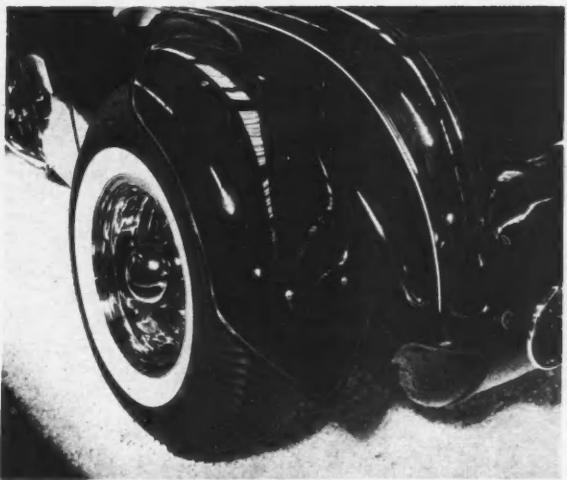
Not content with a tire cover fender, this rodder designed a handsome pair from sheet stock. Metal work is excellent.



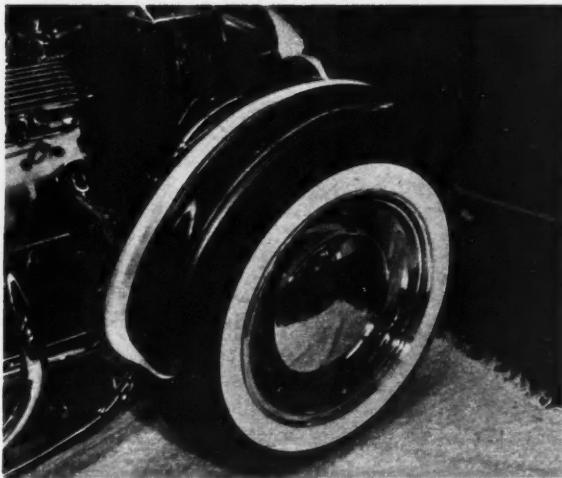
This competition machine is equipped with the barest fender possible, just enough to abide by rules. Rest was scrapped.



Originality is very evident on this car. Full rear fenders were originally two, left and rights being joined together.

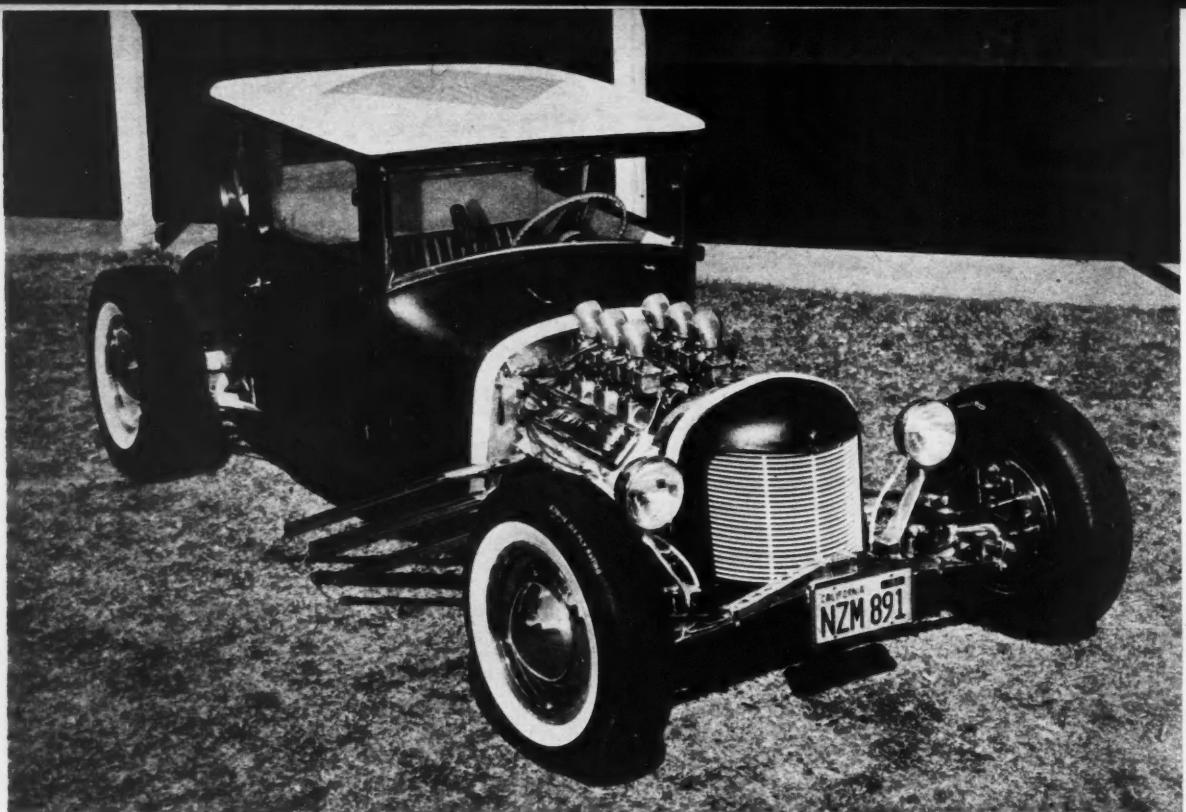


Designed to cover the full tire width, this custom made rear fender is very unique. Ends are pointed, breaking with norm.



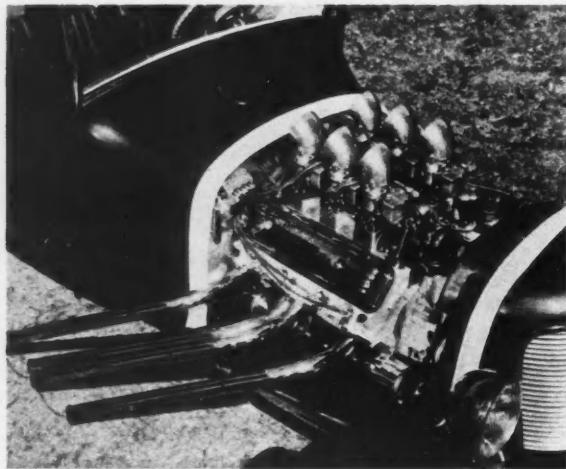
Pair of fenders above belong to the same car, are run fore and aft. At first glance they appear to resemble most other roadster fenders, just a plain covering. That little something has been added though. Each is capped by a small fin.



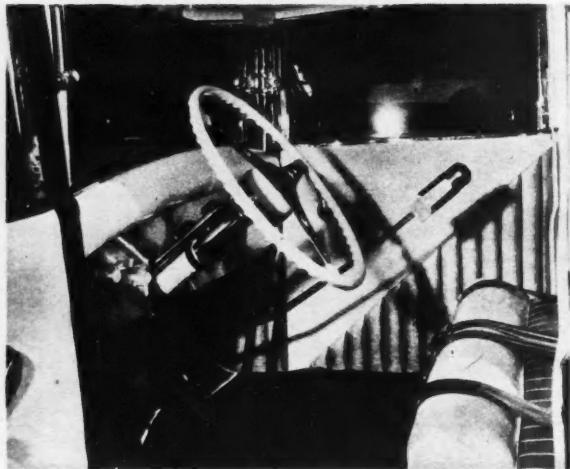


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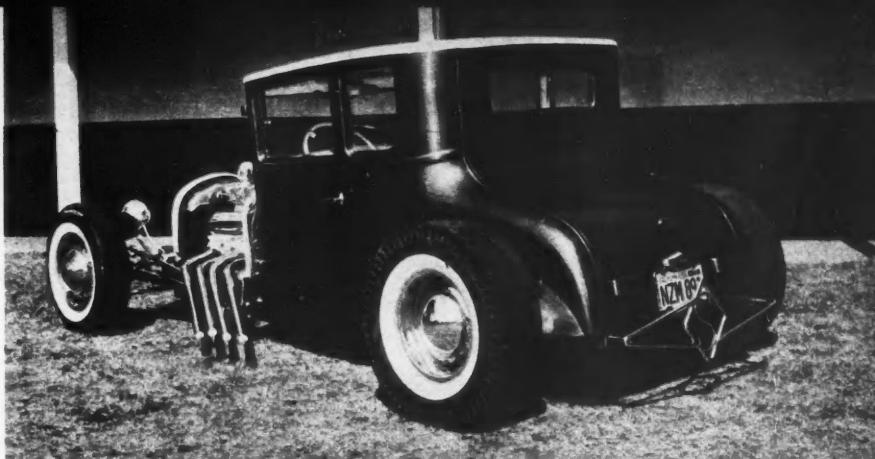
'51 Oldsmobile engine is modified to include 4" stroke and stock bore, 270 Harmon & Collins cam, Jahns pistons, '56 Olds heads, six Stromberg '97' carbs, Scintilla Vertex mag.



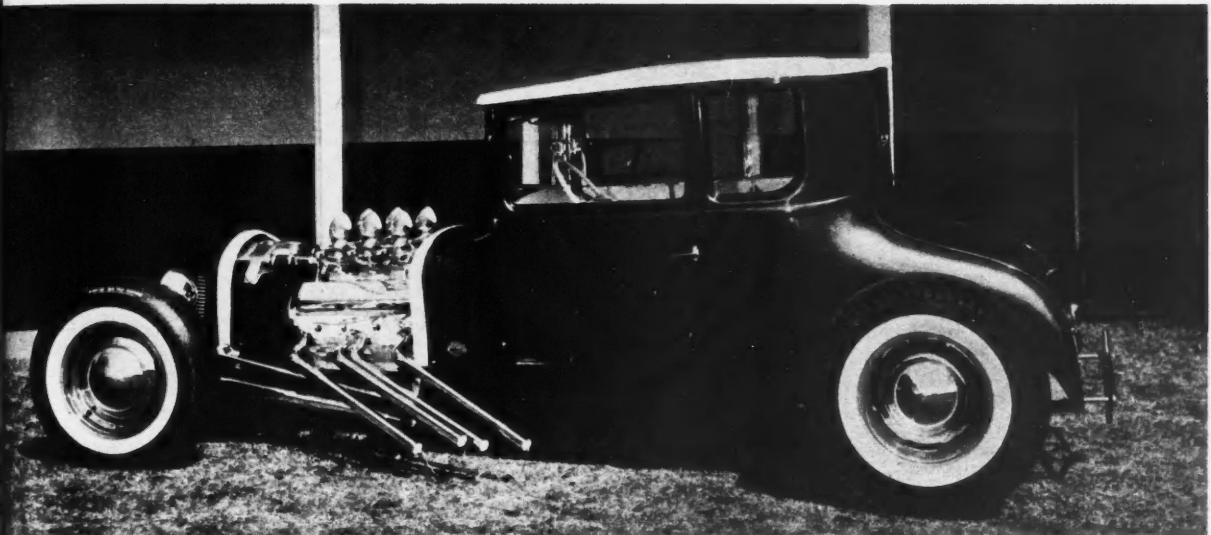
Gold and white Naugahyde upholstery ably stitched by Art-craft Upholstery in Watsonville, California glamorizes the interior. Corvette steering wheel, black rugs are also added.

Purple hued coupe is chopped, channeled. Wheels are reversed, chromed. Sawyer belongs to the Road Knights.

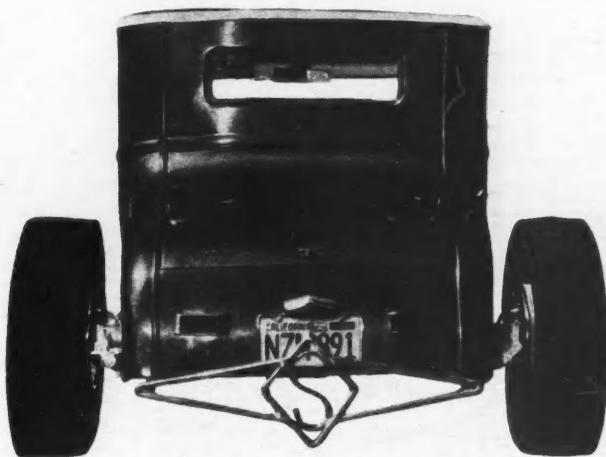
'25 Ford body sits on '32 Ford rails. Engine is moved well to rear. Bruce slicks are run. Lincoln brakes are used.



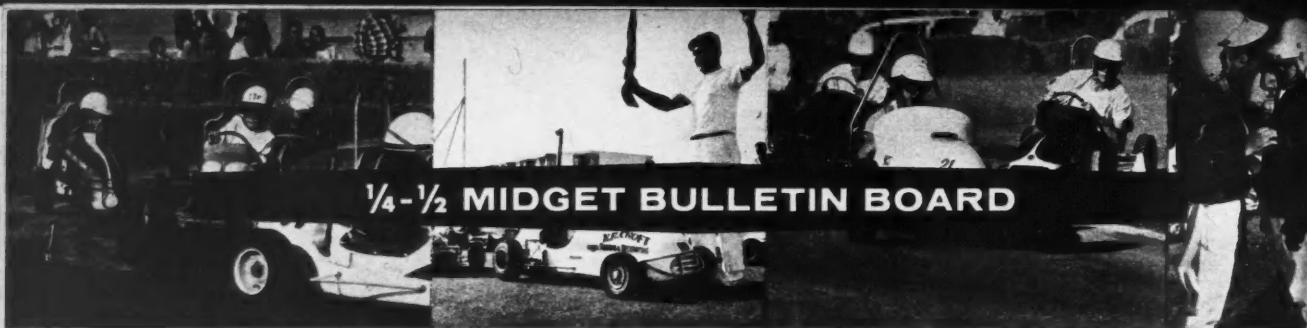
Photos by George Barris



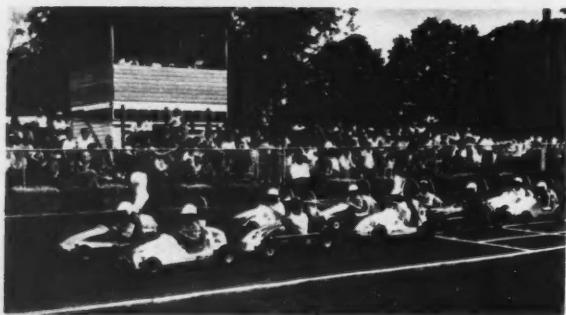
Suicide front end is seen. Shell is '33 DeSoto with '41 Chrysler radiator. The steering is popular Franklin assembly.



Rear end is protected by nerf bar. Taillights are early Buick. Gears are 3.78's in Lincoln rear. Cadillac clutch and LaSalle transmission are employed to transmit Oldsmobile power to 8:20 Bruce slicks.

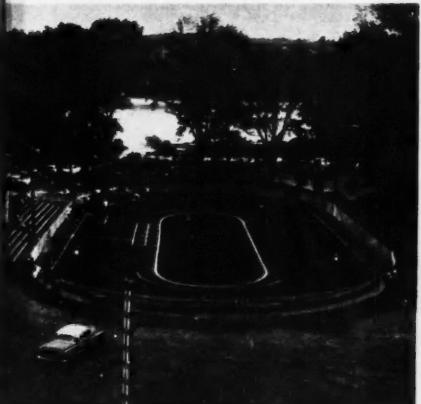


Photos by John Eddy



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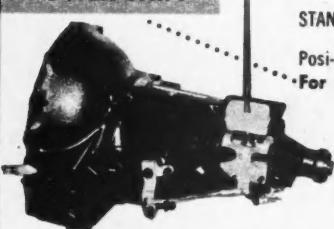
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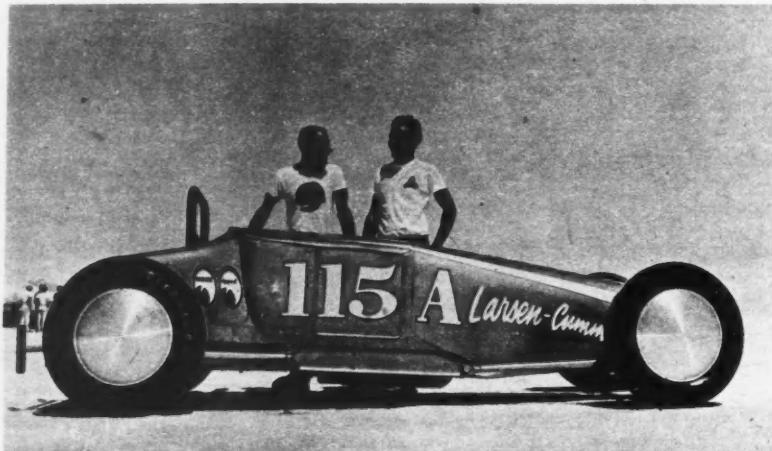
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perfect balance

BONNEVILLE '60

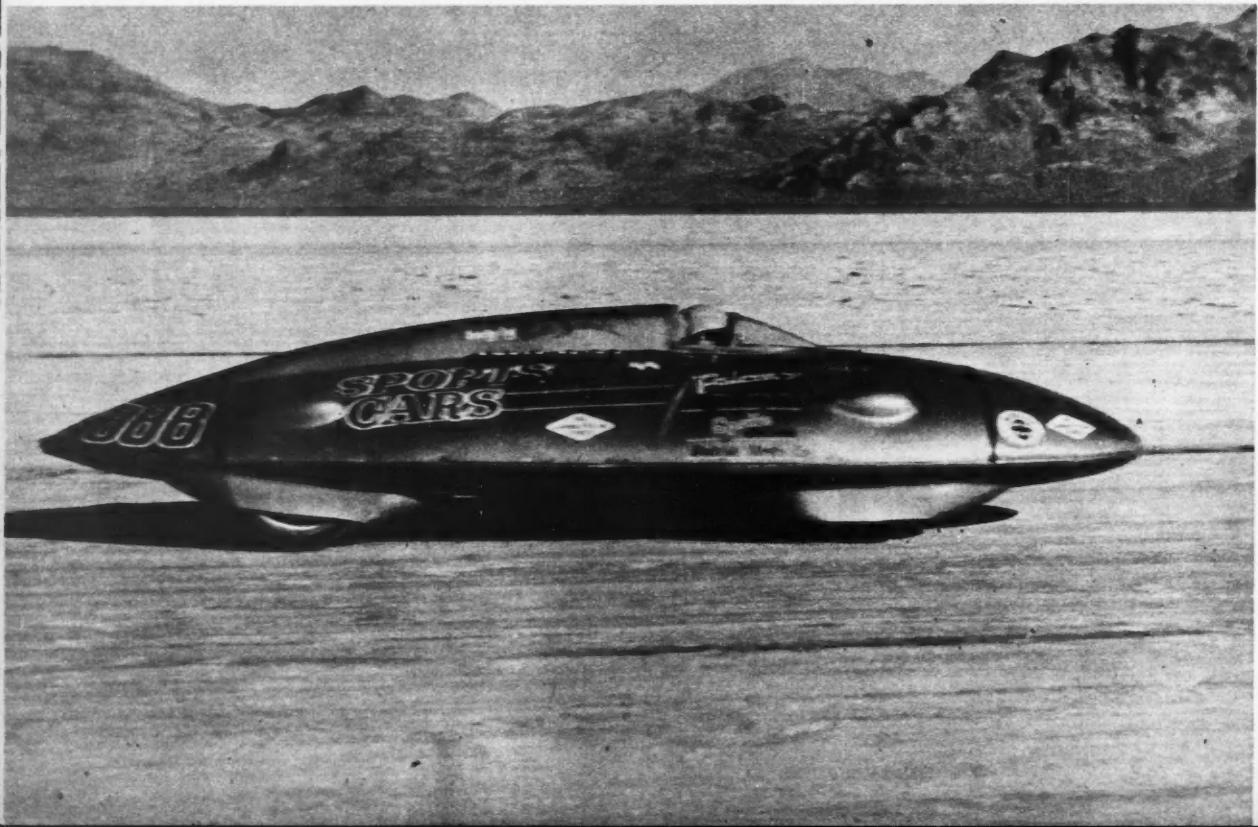


In '59 Bennett and Rothlitz set a new record in B Modified Gas Coupe and Sedan class. This year they boosted the same record to 167 mph, with Cad.



Fred Larsen, left, and Don Cummins had a right to be happy. Their 6-71 blown Chrysler-powered class A Modified Roadster was owner of a 212 record.

The car of the meet was Bill Burke's D class Streamliner. High hopes with six-cylinder Falcon was 200 mph but a record run of 205.949 came easily.



Mickey Thompson's streamliner, back again for the second year to try for the World's Land Speed Record, looks somewhat different than it did in '59. Sides of the front wheels have been covered with aluminum panels, the shape of the tail has been changed to reduce drag, and tall scoops have been added to the hood to provide clearance for blowers.



Knot Farrington still has his T-Bird but the 'Bird has lost its Ford engine. It now has a 429-inch Chrysler, blown with 6-71 wind pusher. Knot's fastest run was 205 with a 200 record.



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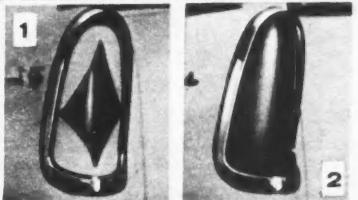
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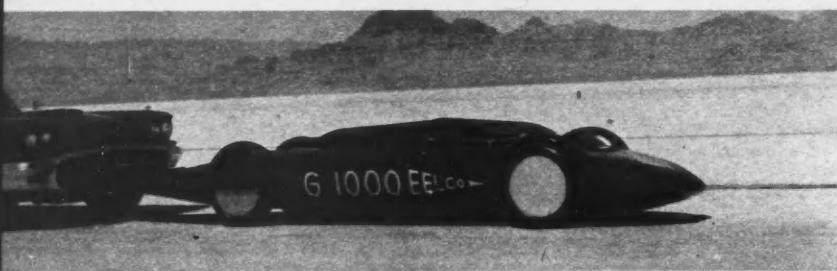
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accurately tests and matches sets of
valve, clutch and other coil springs.

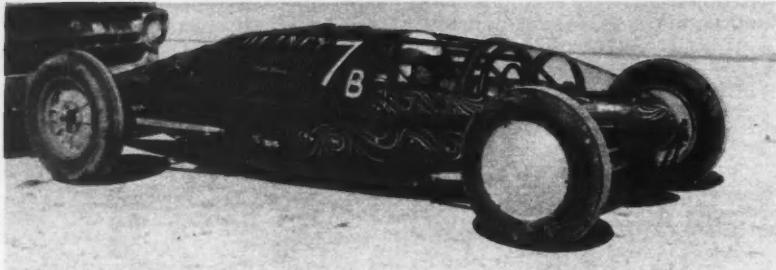
Write Department C.C.
for Free Book and Catalog

CONTINUED

BONNEVILLE '60

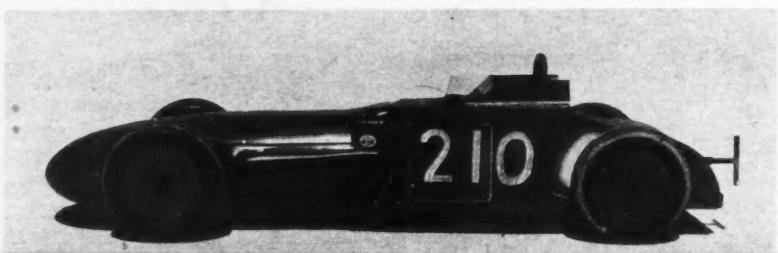


Wee Eel II ran extremely well on the 61 cubic inches of its blown Morris engine. Suffering from carburetion problems, it finally reached a max speed of 158 mph one-way, and settled for record of 135.



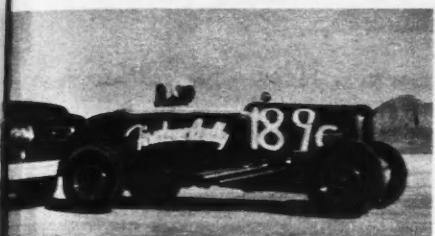
Jim Culbert, San Diego, Calif., decided to build a front-drive car for the salt. With a 354-in. Chrysler, it ran 219.91 mph, handled excellently, will have more engine next year to go for record.

This is the world's fastest open-wheeled car! Running in class A, the Quincy Automotive-Brisette Bros.-Summers tank lakester, Bob Summers driving, made a run of 264 mph, a 251 mph record.

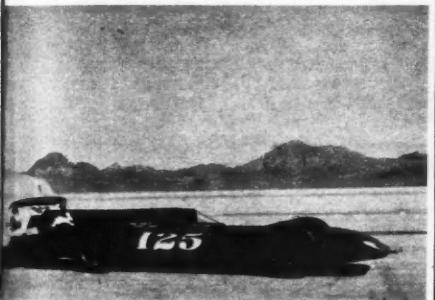


1960 BONNEVILLE RECORDS

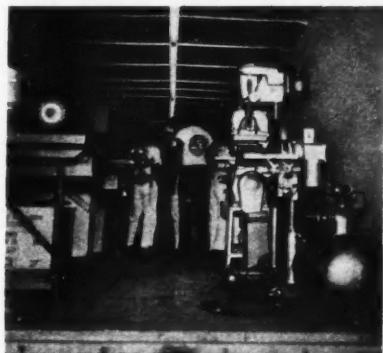
NAME	FAIREST QUALIFYING RUN	NEW RECORD	NAME	FAIREST QUALIFYING RUN	NEW RECORD
D STREAMLINER			D GAS COUPE AND SEDAN		
Sports Cars Illustrated Magazine	150 Falcon	202.300	R. H. Betz	179 Stude	127.29
G STREAMLINER			B MODIFIED GAS COUPE AND SEDAN		119.047
Eelco (Wee Eel II)	61 Morris blown	158.80	Bennett-Rochefort	413 Cadillac	166.87
H STREAMLINER			C MODIFIED GAS COUPE AND SEDAN		167.559
Bud Hare Cycle Shop	40 Triumph	131.300	Competition Automotive/Jones and Huston	302 Chev	154.37
I STREAMLINER			B SUPERCHARGED COUPE AND SEDAN		156.148
Bud Hare	30.50 Triumph	120.64	Anthony Granatelli	413 Chrysler blown	167.91
A LAKER			C SUPERCHARGED COUPE AND SEDAN		165.918
Quincy Automotive-Brisette Bros.-Summers	355 Chrysler blown	264.70	Competitive Automotive/Jones and Huston	302 Chev blown	180.00
B LAKER			D SUPERCHARGED COUPE AND SEDAN		173.4205
Ted Frye	301 Chrysler blown	246.74	Paxton-Products-Joe Granatelli	144 Falcon blown	128.75
A COMPETITION COUPE AND SEDAN			A ALTERED GAS COUPE AND SEDAN		128.0815
Sanchez-Krasne-Nimatic-Lecasta	455 Chrysler blown	213.77	Simonson Cut Rate Gas Sp.	405 Chrysler blown	188.38
A MODIFIED ROADSTER			B ALTERED GAS COUPE AND SEDAN		185.473
Larson-Cummins	400 Chrysler blown	212.505	McGrath-Hammon-Shasta Roadsters	370 Olds blown	161.00
C ROADSTER			BX ALTERED GAS COUPE AND SEDAN		160.0005
Mardon and Ohly	257 Chrysler	205.83	Tom Beatty Automotive Eng.	302 Olds blown	163.63
CX ROADSTER			B GRAND TOURING SPORTS		158.412
Quincy Automotive-Perry Bros.	241 Dodge	180.36	Brian Chuchua	316 Corvette blown	171.10
C GAS ROADSTER			GRAND TOURING SPORTS		171.748
John G. Long-Firestone Reality	303 Chev	170.13	Harry Mann Chevrolet Co.	316 Corvette	158.45
A GAS COUPE AND SEDAN			A SPORTS RACING		158.054
Herman C. Thatcher	513 Dodge	173.07	Hell's Angels	429 Chrysler blown	200.6225
B GAS COUPE AND SEDAN			BX SPORTS RACING		185.56
Herman C. Thatcher	482 Dodge	167.28	Moenbeam	305 Chev blown	180.770
C COUPE AND SEDAN			E SPORTS RACING		140.40
John G. Long-Firestone Reality	368 Ford	158.17	Racer Brown	91 Porsche	141.906
D SEDAN			F TOURING SPORTS		77.075
John G. Long-Firestone Reality	283 Chev	141.28	Dick Bell	75 VW	CAR CRAFT



Realtor John Long, of Norwalk, Calif., and Harold Miller, crankshaft grinder and seasoned hot rodder from Long Beach, Calif., pooled their efforts on John's Chevy-engined C Roadster. With John at wheel, car set record of 169.



Cycle hound Bud Hare, Westminster, Cal., ran his Triumph-engined baby streamliner in two classes and established two new records. With a 40-inch engine, ran 144; with 30.5 inches, 120.



Bill Strappe's Autolite mobile workshop saved many competitors miles and miles of driving to Wendover and back when unexpected mechanical problems arose. Bill also supplied free Autolite racing spark plugs to many car owners.

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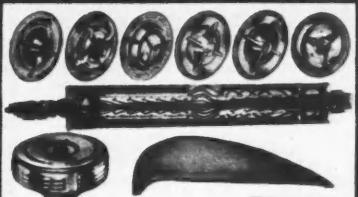
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KARATE — will enable you to execute a blow, requiring a minimum of strength, to any one of thirty-seven key points of the body, that will disable, or temporarily paralyze an opponent. When you are a master of Karate, knives, clubs, or even guns, held at close range are useless against you. IN A FLASH YOU CAN DISARM AND RENDER YOUR OPPONENT COMPLETELY HELPLESS. Karate is the only violent form of Judo taught today. In this new, fully illustrated book, titled "Karate, open hand and foot fighting," Mr. Bruce Tegner, one of the world's leading Karate exponents, quickly and simply shows you how to become a Karate master. It's actually easier to master than Judo. His step by step pictorial teaching method enables you to learn:

1) Karate's striking methods. Illustrations in this section show you how to make lethal use of your finger tips, elbows, knees, heels and nine other parts of your body.

2) Nerve Centers and Pressure Points: How to temporarily disable, stun or paralyze your opponent.

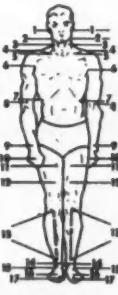
3) Twelve Defenses against Simple Attacks.

4) Twenty Defenses against Simple Attacks.

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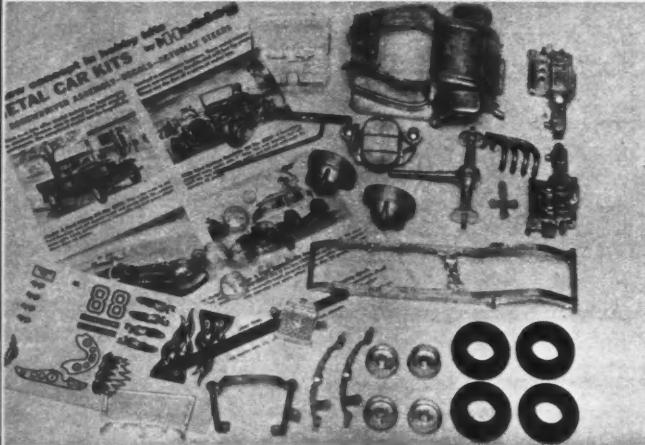
METAL CAR KITS

*Classic favorites
available in
model form*



Photos by Al Palacy

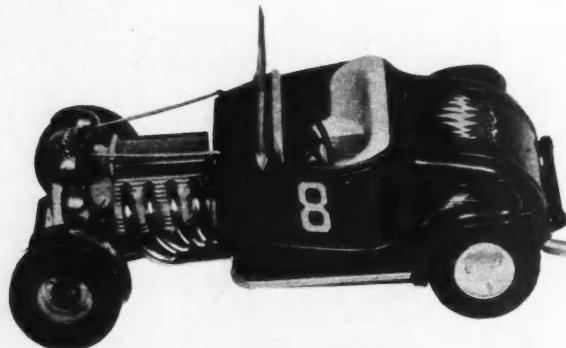
Modified '32 Ford roadster kit has a component list of over 50 parts. All are die cast, including the body shell. A file is provided for detailing-out.



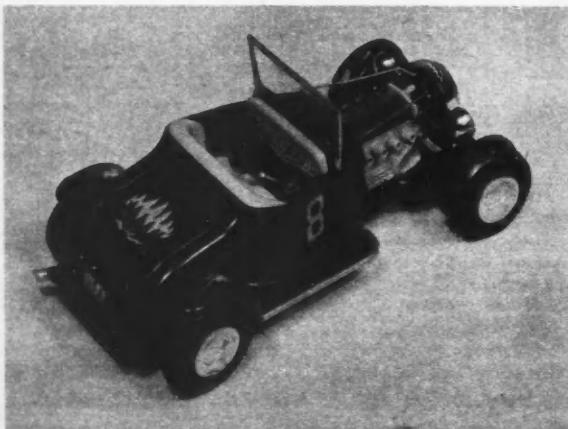
Above is what you'll start with and with a little time you'll have the completed model as below. Tires are rubber and some parts are plastic — seat, windshield, hubcaps. Assembly is simple, quick. Follow instructions and screw together.

A TREMENDOUS BOOM IN model car kit sales has prompted manufacturers to offer more and more automotive replicas to enthusiasts. One line currently on the market is the Hubley series of car kits featuring all metal components.

The kits are completely outfitted with necessary parts for completion of the model you choose. An added extra is a metal file for your convenience in smoothing and cleaning-up the die cast parts. If you're interested, we suggest you direct your correspondence to: Hubley Manufacturing Company, Department CC, Lancaster, Pennsylvania.



Also available on market are three other Hubley metal car kits: Model A Ford Pickup, stock Model A Ford Roadster, and an Indianapolis race car. Sell for about \$3 at model shops.



A special feature on these models is an operating steering assembly. Automotive lacquers or model paints can be used to finish these models. A set of decals is included with rod.



CUSTOM QUERIES

George Barris

BARRIS KUSTOM SHOP

CHEV CUSTOMIZING

Dear George:

I have a '49 Chevy and am customizing it. I would like your advice on a grille and taillights. What can I use?

— Harold Yeaton
Redondo Beach, Calif.

The '55 DeSoto grille assembly would be good; and so would a '57 Buick checkered grille. Either one would look sharp, but I tend to like the Buick unit the best. This is an easy swap and installation process has been covered in this magazine and our companion magazine Custom Cars.

For taillights, how about double '58 Oldsmobile 98 lenses? This would be very unusual and different. If you don't go that route, french your stockers.

FAVORITE FORD

Dear George:

I am making some changes on my '49 Ford and would like some help on these changes. I am going to put in a '56 Ford grille shell in order that I might use a tubular grille. My problem here is will the shell be too wide?

For the interior, I want to install a '59 Olds wheel and steering column. Will it fit with my $\frac{3}{4}$ race flathead engine? Will the steering wheel protrude too far out and too high for comfortable driving?

— Bill Townson
Salem, Oregon

The '56 Ford grille shell will be too wide and will also be too much trouble for what you want. If I were doing the job, I would french-in a '54 Chevy shell housing and then trim the tube grille to fit that. I'm sure that this will be the easiest.

You shouldn't have much trouble with the Olds column and wheel. This type of change, however, does have its problems.

NINE FOR A THIRTY-NINE

Dear George:

I have been reading CAR CRAFT Magazine for years. I have finally stopped pulling out my hair because of customizing problems. So, here is a carload of questions for you.

1.) What window can I use to replace the rear glass on my '39 Merc? I have already removed the stocker

and was double-crossed because I couldn't find a replacement.

2.) What is the easiest and cheapest way of hopping-up my flathead?

3.) What is your suggestion for a color for my coupe?

4.) What 'modern' steering wheel do you suggest I install? I want to keep the stock lock, however.

5.) What dashboard can I adapt?

6.) The rubber on the running boards is pretty well worn. What should I do?

7.) I think the rear fenders are a little 'wacky'. Do you have any ideas?

8.) How does one install a '49 Studebaker radio?

9.) What type of record player can I install? I had a '60 Plymouth model in mind, but what is your opinion?

I know that this is probably a pretty big request, but you don't have to worry about me writing you again. I'm sure that the information that you give me will keep me quite busy for the next three or four years. After that, watch out. I might write again.

— Dennis DiGiovanni
Oceanside, L. I., N. Y.

I'll wait. To answer your questions, we'll take them in order.

1.) Install a '41 Ford Business Coupe rear window.

2.) Try dual carbs, high compression heads, a good ignition and reworked valves. This should do the job.

3.) Lime Gold Kandy for the color.

4.) The '58 Chevy Impala is the most popular steering wheel and I think you can keep the lock.

5.) It'll take a lot of modifying, but install a '41 Cadillac dash.

6.) You can strip the boards and install either white rubber or, what I think is best, pleated and rolled Naugahyde panels that simply snap to the running boards.

7.) Add a pair of '49 Cadillac rear fenders that are cut down and trimmed to fit.

8.) To install that radio, simply cut into the dash at the place you want the wireless installed and build new brackets. Then, hook it up.

9.) Get the new RCA Victor '10 Player' record changer for cars. I think that this is best for your particular situation.

'HAD MY EYES ON A '57 CHEV'

Dear George:

For quite sometime, I've had my eyes on a nice little '57 Chevy convertible. When I buy it, I would like to substitute a '54 Chevy grille. Do you think this will be much work?

— Cecil Skidmore, Jr.
New Iberia, La.

No. Not at all, unless you're afraid of a little work. This is a simple, easy and quick swap that you should be able to do there in New Iberia in a matter of one or two hours.

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Car, make, year, model
No. of Cyls. (6 or 8) Volt. (6 or 12)

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ORDER DIRECT: Dept. CCT-12, MILFORD, PENNA.

WHAT'S YOUR PROBLEM?



By Don Francisco

NO SWEAT ON THIS ONE

Dear Don:

I have a '48 Ford coupe that is set up for a '51 flathead Ford with standard '48 column shift.

I blew the rings out of the old beast, and have located a '56 T-Bird mill. My problem is the Bird mill has automatic transmission and I want to install a '39 Ford floor-shift box.

Can you tell me if I can use standard Ford parts for the hook-up, and if not, what I will need and what difficulties I will run into? Also, where can I get the parts needed? Thanks for the help.

—Bob Teller
Bunker Air Force Base,
Indiana

Other than for a special transmission adaptor housing the installation you want to make can be done with standard Ford parts. Use a T-Bird flywheel and clutch pressure plate assembly and a Ford clutch driven disc that has the correct outside diameter for the pressure plate and the correct hub bore diameter and number of splines to match the clutch shaft on the transmission.

An adaptor housing for this installation can be purchased from practically any speed equipment store. If you can't get to such a store in person you can order the housing and whatever other parts you may need from the advertisers in this magazine who handle such equipment.

IT'S WORTH A TRIAL

Dear Don:

I have a '60 Pontiac economy V8, 215 horsepower, that has a Hydramatic and 2.69 to 1 rear axle gears. I am considering changing the gears to 3.70 or 3.90 to 1. Would this change be worth my while? Also, would a set of 3.70 gears for a standard-shift '56 Chevy V8 fit my car? I have a set of these at my disposal.

Most of my driving is around town below 40 miles per hour but I would like a little extra punch for the drag strip.

—Robert Laumann
Chicago, Ill.

Pontiacs such as yours can handle 2.69 to 1 rear axle gears quite nicely for normal driving. The purpose of the high ratio is to improve the fuel economy of the cars by reducing engine rpm's at normal driving speeds. The engines have adequate torque to pull the gears without lugging.

Gears of a lower ratio, such as 3.70 or 3.90 to 1, would improve your car's acceleration considerably at low speeds but there would be a drop in fuel mileage and an increase in engine fuss and noise at normal car speeds. Perhaps the best thing to do would be to change the gears and then, if the results weren't as expected, reinstall the original set. The job isn't so big that it makes giving the lower ratio a trial unreasonable.

It is extremely doubtful whether rear axle gears for a '56 Chevy can be used in the Pontiac rear axle assembly but any auto parts store that has a catalog for interchangeable parts can supply this information.

FRIENDS AREN'T ALWAYS WRONG

Dear Don:

I am the owner of a 1954 Ford convertible. It is a semi-custom and still needs plenty of work. My problem is that it is a Fordomatic and pretty slow. I've got a bug in my head to install a Corvette engine and transmission in it and I would like to know if this can be done without too much trouble, like having to cut the firewall.

I have asked a lot of people about this problem and they tell me it will take a lot of money and work.

I would appreciate any information you can give me.

—Hank Strufe
Long Island, N.Y.

Two of the nice things about Corvette engines and transmissions are their small size and light weight. These make them ideal for engine swaps. However, any engine swap, regardless of the engine and transmission used and the chassis in which the swap is to be made, involves considerable work and money. Swaps are easier now than they ever were because of ready-made engine mounts and other necessary parts, but they still require work and money.

At one time the problems created by an engine swap were all mechanical ones but now electrical problems enter the picture when an engine fitted with a 12-volt electrical system is installed in a chassis that has a 6-volt system. The problems involved here are not insurmountable but they can be overcome only by the expenditure of more work and money.

Engine swapping is an ideal way of improving the performance of an older model car and, when done correctly, it can have highly gratifying results. But when done halfway, because a fellow runs out of energy or money, the results can be miserable. A fellow must be his own judge of his capabilities and financial resources when an engine swap is under consideration.

COMING EVENTS

SHOWS

Fort Wayne, Ind. — Dec. 16-18; 2nd Annual Rod & Custom Show, Allen County Memorial Coliseum Shows, Inc.
Louisville, Kentucky — Nov. 24-27; 3rd Annual Rod & Custom Show, Kentucky Fair & Exposition Center, Shows, Inc.
Baltimore, Maryland — Nov. 17-19; Rodorama '60, Howard & Preston Street, Mid-Atlantic Timing Assn.
St. Louis, Mo. — Nov. 10-13; National Speed and Custom Car Show, Mis-III Timing Assn.
Hanover, Penna. — Nov. 25-27; Hanover's 1st Annual Rod and Custom Car Show, Shultz Chevy Garage.
Nashville, Tenn. — Nov. 19-20; 2nd Annual Central Autorama, State Fairgrounds coliseum, Tappets, Inc.
Dallas, Texas — Nov. 12-13; 1st Annual Autorama, Texas State Fairgrounds, North Texas Timing Assn.
Houston, Texas — Nov. 19-20; 1st Annual Houston Rod & Custom Show, Sam Houston Coliseum, Rod Busters Auto Club.

NHRA DRAG SCHEDULES

El Mirage, Ariz. — 2nd & 4th Sat. night. Phoenix Drag Strip.
Phoenix, Ariz. — 1st & 3rd Sat. night. Deer Valley Dragway.
Little Rock, Ark. — 1st & 3rd Sun. Mid South Timing Assn.
Colton, Calif. — Every Saturday nite. Colton Drag Strip.
Eureka, Calif. — 2nd & 4th Sun. Humboldt Timing Assn.
Hollister, Calif. — Reopen Sept. Imperial Valley Timing Assn.
Inyokern, Calif. — Reopen Sept. Dust Devils Club.
Madera, Calif. — 2nd Sun. Madera Clutchers, Inc.
Oreville, Calif. — 2nd Sun. Clutchers, Inc.
Pomona, Calif. — Every Sunday; Pomona Valley Timing Assn.
Redding, Calif. — 3rd Sunday each month. Shasta Rodsters.
San Luis Obispo, Calif. — 3rd Sun. San Luis Obispo Co. Timing Assn.
Santa Maria, Calif. — 1st Sun. Dragons, Inc.
Visalia, Calif. — 4th Sun. Vapor Trailers.
Grand Junction, Colo. — Every other Sunday, Grand Junction Hot Rod Council.
Davis, Fla. — 2nd & 4th Sun. Broward Auto Club.
Miami, Fla. — 1st & 3rd Sun. South Fla. Timing Assn.
Green Cove Springs, Fla. — Every Sun. Thunderbolt, Inc.
Kissimmee, Fla. — 1st Sun. Central Florida Timing Assn.
Augusta, Ga. — Every Sunday, Augusta Intern'l Speedway.
Covington, Ga. — Newton County Drag Strip, 4th Sun.
Sterling-Rock Falls, Ind. — Every Sunday — '88' Drag-way.
Sioux City, Iowa — Ev. Sund. Sioux City Strollers.
Muncie, Ind. — Every Sunday. Muncie Dragway.
Coffeyville, Kans. — 1st & 3rd Sun. Coffey Grinders Hot Rod Club.
Mansfield, La. — 3rd Sun. each month. Ark-La-Tex Timing Assn.
Opelousas, La. — 2nd Sun. each month. Pel-State Drag Strip.
Orange, Mass. — 3rd Sun. ea. month. New England Timing Assn.
Detroit, Mich. — Every Sun. Detroit Dragway.
Minneapolis, Minn. — Every Sunday. Twin Cities Optimists Club Timing Assn.
Belgrade, Mont. — 2nd Sun. each month. Bozeman Racers.
Fallon, Nev. — Open Sept. 18, Hurricanes Club.
Atco, New Jersey — Every Sunday, Every Wed. night. South Jersey Timing Assn.
Great Meadows, N. J. — Every Sunday; Great Meadows Timing Assn.
Vineland, N. J. — Every Sat. nite thru Sept. 17. Vineland Dragway.
Hobbs, N. M. — 1st Sun. Charolteans Auto Club.
Roswell, N. M. — 3rd Sun. Dusters Auto Club, Walker AFB.
Cicero, N. Y. — Every Sunday ESTA.
So. Thompson, Ohio — Thompson Speedway Drag Strip.
Cincinnati, Ohio — Every Sunday. Beechmont Dragway.
Dayton, Ohio — Every Sun. Dahlia Drag Strip, Mont. Co. Timing Assn.
Toledo, Ohio — Every other Sun. Glass City Dragway.
West Salem, Ohio — Every Sunday. Dragway '42'.
Oklahoma City, Okla. — Open every Sun. Oklahoma City Drag Strip.
Tulsa, Okla. — Every other Sun. T. T. A.
Petion, S. Car. — Every Sat. night Palmetto Racing Affiliates, Inc.
Holts, Tenn. — 1st & 3rd Sun. Memphis Stockers.
Abernathy, Texas — 4th Sun. Tri City Drag Assn.
Abilene, Texas — 3rd Sun. Abilene Jay-Cees.
Amarillo, Texas — Every Sun. Amarillo Dragway.
Ceddo Mills, Texas — 1st Sun. North Texas Timing Assn.
Corpus Christi, Texas — 2nd Sun. Nat'l Racing Affiliates of Corpus Christi.
El Paso, Texas — 2nd & 4th Sun. El Paso Timing Assn.
Newark, Texas — 2nd & 4th Sun. Tartron Co. Modified Auto Assn.
Wichita Falls, Texas — 2nd Sunday each month. Red River Drag Strip.
Petersburg, Va. — Every Sunday. Eastern Dragway.
Lynchburg, Va. — Ev. Sun. Associated Wheels, Inc.
Kent, Wash. — 11/25. Pacific Raceways & KYAC.

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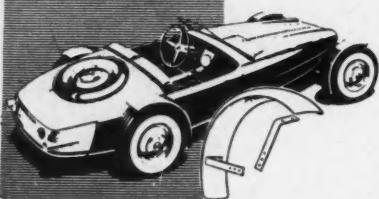
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